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FINAL REPORT

March 2017

TOWN OF
Dedham
MASSACHUSETTS

Sewer System Hydraulic Flow Model Update
Final Report

5 Centennial Drive, Peabody, MA 01960 (HQ)
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Town of Dedham, Massachusetts
Weston & Sampson Project No. 2160019.A

March 24, 2017

Mr. Jason L. Mammone, PE
Director of Engineering
55 River Street
Dedham, Massachusetts 02026

Re: Sewer System Hydraulic Flow Model Update Final Report

Dear Mr. Mammone:

Weston & Sampson Engineers, Inc. is pleased to submit our final report on the Sewer System Hydraulic Flow Model outlining the sewer system hydraulic modeling procedure and results. The purpose of developing the sewer system model was to evaluate the current capacity of major wastewater collector sewers and to identify potential problem areas. In the future, the model will serve as a tool to analyze the impact of future sewer system expansion. The report describes how the model was constructed, the methodology for selecting flow inputs, and results of the model runs. The Stormwater and Wastewater Management Model Program (XP-SWMM) was used for the simulations.

Project Description

The Town of Dedham, Massachusetts is a residential community located southwest of Boston. Wastewater collected in the town drains east toward Boston where it enters the MWRA interceptor. Flow is ultimately treated at the Deer Island Wastewater Treatment Plant. The town's wastewater collection system consists of approximately 96 miles of gravity sewer with an average daily flow of approximately 3.4 million gallons per day (MGD), annually, per the MWRA. A summary of gravity sanitary sewer pipes is shown in Table 1.

For the purposes of this model, the Dedham sewer system is divided into 26 sewer subareas. Figure 1 shows each sewer subarea, the limits of the wastewater collection system and the locations of the sanitary sewers that were modeled in this project.

Groundwater, rainfall, and flow monitoring were performed during the spring of 2016 to obtain flow data for use in calibrating the model, and to qualify and quantify wastewater flow components. Detailed results of the flow monitoring analysis were provided to the town in a November 2016 letter report. The following is a summary of the monitoring results.

Data Collection

Wastewater flows were monitored and data was accumulated for a ten-week period from February 27 through May 30, 2016. Each meter recorded flow depth and velocity in fifteen-minute intervals to calculate flow quantities. Twenty-four meter areas were delineated and utilized to divide the collection system, monitoring 25 of the 26 sewer subareas.

Groundwater levels during the metering period (February 27, 2016 to May 30, 2016) were monitored to determine the period of time when groundwater levels were elevated. Groundwater levels during a

majority of the monitoring period were slightly lower than the historical springtime averages. Hourly rainfall information was also collected during the monitoring period. During the monitoring period, 18 rainfall events occurred and are summarized below.

Rainfall Events

Storm No.	Start Date	Start Time	End Date	End Time	Duration (hrs)	Total Rainfall (inches)	Peak Intensity (in/hr)	Average Intensity (in/hr)
1	3/2/2016	0:50:00	3/2/2016	9:20:00	8.5	0.45	0.22	0.05
2	3/10/2016	14:10:00	3/10/2016	23:05:00	8.9	0.21	0.04	0.02
3	3/14/2016	13:00:00	3/15/2016	18:55:00	29.9	1.24	0.14	0.04
4	3/17/2016	0:50:00	3/17/2016	1:45:00	1.0	0.17	0.17	0.17
5	3/21/2016	11:15:00	3/21/2016	13:10:00	2.0	0.28	0.23	0.14
6	3/25/2016	8:55:00	3/25/2016	11:50:00	3.0	0.11	0.06	0.03
7	3/28/2016	7:05:00	3/28/2016	6:00:00	11.0	0.46	0.14	0.04
8	4/2/2016	8:25:00	4/2/2016	19:20:00	11.0	0.43	0.16	0.04
9	4/3/2016	2:20:00	4/3/2016	13:10:00	5.8	0.72	0.20	0.12
10	4/5/2016	11:30:00	4/5/2016	15:25:00	4.0	0.34	0.16	0.08
11	4/7/2016	10:10:00	4/7/2016	18:05:00	8.0	1.42	0.34	0.17
12	4/12/2016	9:25:00	4/12/2016	12:20:00	3.0	0.28	0.13	0.09
13	4/26/2016	9:45:00	4/26/2016	12:40:00	3.0	0.30	0.19	0.10
14	5/2/2016	10:10:00	5/2/2016	13:05:00	3.0	0.30	0.21	0.10
15	5/4/2016	16:35:00	5/4/2016	21:30:00	5.0	0.36	0.12	0.07
16	5/13/2016	18:20:00	5/14/2016	0:15:00	6.0	0.14	0.03	0.02
17	5/19/2016	22:10:00	5/19/2016	23:05:00	1.0	0.18	0.18	0.18
18	5/30/2016	3:45:00	5/30/2016	8:40:00	5.0	1.32	0.70	0.26

*Note: Rain events highlighted in blue were used in the analysis

Metering Results – Infiltration & Inflow (I/I)

Infiltration is extraneous groundwater that enters the sewer system through sources such as defective pipes, pipe joints and manhole walls. Analysis of flow data for peak infiltration consisted of selecting the lowest flow reading occurring during dry weather between 12:00 a.m. and 6:00 a.m. Nighttime flow represents a period of minimum sanitary flow, and therefore, has the highest percentage of flow attributed to infiltration. An estimated 2.76 MGD of peak springtime infiltration exists in the town. Peak infiltration values were used in the model scenarios.

Peak design storm inflow rates were calculated based on a one-year, six-hour storm with a peak of 0.87 in/hr. The peak design storm inflow was estimated to be approximately 7.26 MGD. In addition, estimated peak design storm inflow for a 5-year, 24-hour design storm was calculated using data obtained in the 2016 Town-wide Flow Monitoring Program. The flows were calibrated to equal inflow volumes that a 5-year, 24-hour storm would theoretically produce. Peak design storm inflow rates for the one-year, six-hour storm and 5-year, 24-hour storm were used in the model scenarios.

GIS/Model Update/Interface with GIS

Weston & Sampson performed a hydraulic analysis of the major wastewater collector sewers in Dedham using XP-SWMM modeling software. In order to update the model, wastewater information from the town's existing GIS was used.

It is important to note that the XP-SWMM model assumes ideal pipe conditions for theoretical flows using the Manning's equation. It does not account for any obstructions, grease, roots, sags, broken pipe, sediment, offset joints or anything else that may affect flow in the system. There is a greater likelihood for surcharging and sewer system overflow (SSO) conditions in pipes identified as possible problems if any of these obstructions exist. Actual conditions of the sewer system are documented by the Town during their Annual Sewer Program's investigation phases and rehabilitation methods are recommended for defects.

Existing Model System Data

The existing sanitary model included approximately 42,800 lf of sewer pipe, just below 10% of the entire sewer system, comprising the critical collector sewers in the wastewater system. These pipes are shown in Figure 1. Primarily focused on trunk sewers and interceptors, a summary of modeled sewer pipes by pipe diameter is shown in the table below. Pipe segments that have been lined since the previous modelling effort are assumed to have had their diameter reduced by 0.5-inches.

Model Pipe Size

Pipe Diameter (in)	Pipe Length (lf)
7.5	803
8	1,066
9.5	601
10	2,487
11.5	6,259
12	7,984
14.5	5,988
15	2,505
16	214
17.5	2,230
18	596
21	2,676
22	986
23.5	1,801
24	4,079
23.5 x 35.5	2,522
TOTAL	42,797

Additional detailed sewer system conduit data is displayed in Table 2, including:

- Conduit ID (C-Subarea-Upstream Manhole)
- Length (ft)
- Manning's Roughness Coefficient "n"
- Sewer Pipe Diameter (in)

Sewer System Junction (Node/Manhole) Data is displayed in Table 3 and includes:

- Junction Name (Subarea-Manhole)
- Ground (Rim) Elevation (ft)
- Crown Elevation (ft)
- Invert Elevation (ft)

Model Scenarios

The hydraulic analysis of the sanitary system was performed for five flow scenarios. The flows applied to the model scenarios were from the metering period (February 27 to May 30, 2016) and are considered conservative due to groundwater levels near springtime averages.

In each Model Scenario, flows were apportioned to at least 150 nodes considered to be critical junction points in the model area based on a weighted average of the incoming pipe lengths. Tables with actual flow values applied to the input nodes for all Model Scenarios are included in Appendix A.

Model Scenario 1: Calibration model - Average daily dry weather flow (wastewater component only).

Model Scenario 2: Average daily dry weather flow plus peak infiltration.

Model Scenario 3: Average daily dry weather flow plus DEP one-year 6-hour peak design storm inflow.

Model Scenario 4: Average daily dry weather flow plus five-year 24-hour design storm inflow.

Model Scenario 5: Peak sanitary wastewater plus five-year 24-hour design storm inflow plus peak infiltration.[1]

[1] Peak Sanitary Wastewater = Wastewater component multiplied by maximum day peaking factor obtained from ASCE Manual of Engineering Practice No.37

In reviewing the results from the sanitary model, focus was on surcharged manholes, SSOs, maximum flow versus maximum capacity ratio for pipes, and high and low pipe velocities:

- "Surcharging" is defined as a hydraulic gradeline that is above the crown elevation of the pipe at the manhole. These areas should be monitored during wet weather to avoid and prevent sewer overflows and backups to buildings.
- "SSO" is when a hydraulic gradeline reaches the rim elevation of a junction.
- The ratio of maximum flow versus maximum capacity should ideally be below 1.0. Any pipe with a ratio above 1.0 is noted. The maximum flow is determined during the model simulations. The maximum capacity is the full conduit flow as computed by Manning's equation. These areas should also be monitored during wet weather for potential surcharging.
- Peak flow velocities should be above 1.4 feet per second (fps) for average daily flow, and below 10 fps for peak flow conditions. Flow velocities below 1.4 fps are considered low flow velocities. Low flow velocities can result in settlement of debris causing build ups and blockages. Typically sewers are designed for a minimum velocity of 2.0 fps for peak design flow and 1.4 fps for average flow. The majority of Dedham's conduit flows do not approach the design flow, so the lower velocity is the threshold selected. These areas should be cleaned and inspected yearly to avoid sediment build up that can reduce pipe capacity.

- Flow velocities above 10 fps are considered high flow velocities that can cause pipe deterioration through scouring of the pipe walls and should be cleaned and inspected yearly.

Model Results

Model Scenario 1 – Average Daily Dry Weather Flow

Average daily dry weather flows (from the meter data) were distributed to create Model Scenario 1. The model simulation duration was a 24-hour period. The total flow for the scenario model was 1.25 MGD A summary of the results is displayed in Figure 2 and summarized below.

- 83 conduits had a peak velocity below 1.4 fps and are included in Table 4. As described above, these sewers could experience debris build up due to low velocities and should be cleaned and inspected annually.
- There were no peak velocities above 10 fps.
- There were two (2) junctions with surcharge conditions. These are shown in Table 5.
- All flow ratios were below 1.0. The maximum capacities of the pipe segments were sufficient for the flows associated with this scenario.
- There were no SSOs.

Model Scenario 2 – Average Daily Dry Weather Flow Plus Peak Infiltration

Average daily dry weather flows combined with peak infiltration were distributed to create Model Scenario 2. The model simulation duration was a 24-hour period. The total flow for the scenario model was 4.08 MGD. A summary of the results is displayed in Figure 3 and summarized below.

- 29 conduits had a peak velocity below 1.4 fps. These are shown in Table 6.
- There were no peak velocities above 10 fps.
- There were two (2) junctions with surcharge conditions. These are shown in Table 7.
- One (1) conduit had a flow ratio above 1.0. This is shown in Table 8.
- There were no SSOs.

Model Scenario 3 – Average Daily Dry Weather Flow Plus DEP Peak Design Storm Inflow

Average daily dry weather flows combined with peak design storm inflow were distributed to create Model Scenario 3. The model simulation duration was a 24-hour period. The total flow for the scenario model was 8.49 MGD. A summary of the results is displayed in Figure 4 and summarized below.

- 26 conduits had a peak velocity below 1.4 fps. These are shown in Table 9.
- One (1) conduit had a peak velocity above 10 fps. This is shown in Table 10.
- There were three (3) junctions with surcharge conditions. These are shown in Table 11.
- One (1) conduit had a flow ratio above 1.0. This is shown in Table 12.
- There were no SSOs.

Model Scenario 4 – Average Daily Dry Weather Flow Plus Five-Year 24-Hour Design Storm Inflow

Average daily dry weather flows combined with peak design storm inflow (based on the five-year, 24-hour storm) were distributed to create Model Scenario 4. The model simulation duration was 24 hours. The total flow for the scenario model was 12.81 MGD. A summary of Model Scenario 4 results is presented below and displayed in Figure 5.

- 21 conduits had a peak velocity below 1.4 fps. These are shown in Table 13.
- Two (2) conduits had a peak velocity above 10 fps. These are shown in Table 14.

- There were 13 junctions with surcharge conditions. These are shown in Table 15.
- 13 conduits had a flow ratio above 1.0. These are shown in Table 16.
- There were no SSOs.

Model Scenario 5 – Peak Sanitary Wastewater Plus Five-Year 24-Hour Design Storm Inflow Plus Peak Infiltration

Peak sanitary wastewater flows combined with five-year 24-hour design storm inflow plus peak infiltration were distributed to create Model Scenario 5. The model simulation duration was 24 hours. The total flow for the scenario model was 21.65 MGD. A summary of Model Scenario 5 results is presented below and displayed in Figure 6.

- Six (6) conduits had a peak velocity below 1.4 fps. These are shown in Table 17.
- Five (5) conduits had a peak velocity above 10 fps. These are shown in Table 18.
- There were 54 junctions with surcharge conditions. These are shown in Table 19.
- Approximately 50 conduits had a flow ratio above 1.0. These are shown in Table 20.
- Three junctions, KK10, KK40 and WW460, experienced flooded (SSO) conditions. These are shown in Table 21.

Conclusions & Recommendations

This report summarizes the results of the hydraulic modeling procedure used to evaluate the current capacity of Dedham's major wastewater collector sewers. Potential problem areas were identified as a result of the five modeling scenarios performed. An explanation on how to use this model as a future tool to analyze the impact of future expansion is provided below.

- The areas of concern for the Dedham sanitary model focus on surcharged nodes, low velocities, high velocities, and flow ratios. These categories highlight areas of concern and should be monitored in the future. We offer the following specific recommendations:
    - Areas subject to surcharge conditions and flow ratios above 1.0 should be visited during wet weather to identify and prevent potential sewer overflows and backups to buildings. These are shown in Tables 8, 12, 16 and 20.
        - It is also recommended conduits where the flow ratios were above 1.0 without surcharge conditions be televised during Year One of the Annual Sewer Program. These are shown in Table 22.
    - Areas subject to low velocities should be cleaned periodically to remove sediment and silt buildup that will reduce the pipe capacity. These are shown in Tables 4, 6, 9, 13 and 17.
    - Pipe segments subject to high flow velocity should be inspected annually for scouring and pipe deterioration or collapse. These are shown in Tables 10, 14 and 18.

- Model Scenario 5 (peak sanitary wastewater flows combined with five-year 24-hour peak design storm inflow and peak infiltration) had the highest flows (21.65 MGD). Fifty conduits had a flow ratio above 1.0 during the simulation and 54 manholes surcharged with 3 of those manholes experiencing SSO conditions based on the model. The three manholes are KK10, located at the intersection of Colburn Street and Emmett Avenue, KK40, located at the intersection of Colburn Street and Harding Terrace, and WW460, located at the intersection of Greensboro Road and Bonham Road. These manholes should be visited during heavy rain events to confirm actual conditions in the field. Pressure/depth sensors could be installed to monitor surcharging during typical high periods of groundwater (spring) to verify model

conditions.

- Junctions KK10 (DE-4C) and KK40 (DE-8C) experienced flooded conditions in the current flow Model Scenario 5 and did not experience these conditions in the previous 2011 model scenario. This is because the peak inflow rates at meters KK60 and KK180 significantly increased for the current estimates compared to 2011.
  - KK60 increased from 290,000 gpd peak design storm inflow to 485,000 gpd (67% increase)
  - KK180 increased from 108,315 gpd peak design storm inflow to 313,896 gpd (189% increase).
- Further review of rain and flow data show that the April 7, 2016 storm had a peak intensity of 0.34 in/hr. with a total of 1.42 inches precipitation. This caused the flows in both meters to rapidly increase. During the metering period there were no other significant storm events. This caused the April 7, 2016 storm to be the major contributing factor in the linear regression analysis for 2016. Three similar storms were analyzed in 2011 that had peak intensities greater than 0.25 in/hr. By having more data to analyze the linear regression in 2011, the estimated inflow is a better representation of inflow in the subarea.
- Four positive inflow sources were identified during the 2013 Year One Inflow Investigations (smoke testing) in Subarea KK on private property (3 driveway drains and one open cleanout cap) contributing an estimated 8,977 gpd of peak design storm inflow. It is recommended that these inflow sources be removed if they have not been already. A list of the locations is below:
  - 57 Leonard Street – Driveway Drain
  - 38 Leonard Street – Driveway Drain
  - 81 Berlin Street – Driveway Drain
  - 55 Thomas Street – Open Cleanout Cap Below Grade
- The 2014 Building Inspection Project did not include Subarea KK located in Precinct 6. Since it is unlikely that any additional private inflow sources that would be identified through smoke testing (i.e. driveway drains, roof leaders, etc.) were connected between 2013 to present, it is recommended that private building inspections be conducted in Subarea KK to locate sump pumps that are connected to the sanitary sewer system. A detailed proposal and cost for these investigations may be provided upon request.

- Please note that SSOs were modeled based on theoretical, extreme flow conditions and have not been confirmed in the field. In addition, this model does not take into account actual flow conditions in the MWRA interceptor during storm events, and assumes free outfalls at all MWRA interceptor junction points. Possible flow impacts from the MWRA system were not taken into account in the development of the model. Conduit configurations and/or diameters downstream of manholes KK10, KK40 and WW460 theoretically need to be upgraded to reduce the potential for SSO conditions during extreme weather. Weston & Sampson is available to discuss specific upgrades with you, at your request.

- The existing model should be updated for future revisions or improvements that are performed through the Annual Sewer Program. Future changes made to GIS should also be made to the model. It is critical to keep the model up to date with changes made to the system or GIS.

- The existing model should be utilized to analyze the impacts of future expansion to the sanitary system. The model can be used as part of the town's permitting process to evaluate the impact of added sanitary flow (as provided by the developer). If the additional flows require system improvements, the town can require the developer to make improvements before approving sewer extensions. Additional model runs may be performed at the town's request. The town may require the developer to absorb the costs of additional model runs/analysis/reporting.

- The town should consider following the updated Priority Re-Evaluation Annual Sewer Program shown in Table 23. The re-prioritization is based on results from the 2016 Flow Metering Effort. The areas that are recommended first contribute the highest quantities of infiltration and inflow to sanitary sewer flows. Every subarea will be included in the investigations over the next five years. For areas discovered from this model to be of concern, special attention and more detailed inspections should be conducted during future inspections (television and manhole). Additional upstream and downstream investigations should be performed during the field inspections if problems are observed in these areas.

We wish to thank you and the members of the Engineering Department staff for their assistance while completing this project. We are available to meet with you at your earliest convenience to discuss this report. Please do not hesitate to contact me at (978) 532-1900 with any questions or comments you may have.

Very truly yours,

WESTON & SAMPSON

Donald G. Gallucci, PE
Vice President

cc: Ronald Lawrence, Project Engineer
Nathan S. Buttermore, PE, Infrastructure Engineer

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TABLES

TABLE 1
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SUMMARY OF EXISTING SEWER SYSTEM

Subarea	4	5	6	8	10	12	15	16	18	21	22	24	Total Linear Footage (lf)	Total Inch-Miles (in-mi)[1]
AA			222	12,900	2,563	1,666							17,351	28.44
BB			608	7,540	1,276								9,424	14.53
CC			171	10,052	781	329					1,587		12,920	24.26
DD			4,052	12,968	3,755								20,775	31.36
EE	174	31	149	10,072	2,371	2,004							14,801	24.64
FF			2,171	16,876	1,060	2,092	247						22,446	35.50
GG			970	20,678	1,803	1,824	1,795		283				27,353	46.06
HH			2,047	19,854	5,362	2,424							29,687	48.07
II			361	27,376	835	40						11	28,623	43.61
JJ	185		1,726	13,326	214	2,377			2,582			5,550	25,960	62.13
KK			68	18,043									18,111	27.42
LL			1,903	14,791		128	7						16,829	24.88
MM			917	15,151	290	2,074							18,432	29.26
NN				9,622	2,029								11,651	18.42
OO			350	20,573		790			11	1,034		3,155	25,913	51.86
PP			487	12,443	520	5,978							19,428	33.98
QQ			456	9,469	157	264	1,806	214	20				12,386	21.61
RR				18,756	347	482							19,585	30.17
SS			897	27,056	1,080	1,110			163	1,233			31,539	52.04
TT	135			15,843	2,196	799	721						19,694	32.13
UU			522	12,014	591	4,000							17,127	29.01
VV			238	11,641			1,925						13,804	23.38
WW		99	214	16,811	471	1,904	1,829		349				21,677	37.41
XX	149		227	14,403	1,500								16,279	25.03
YY			208	13,165	1,056	1,944							16,373	26.60
ZZ			2,854	15,126									17,980	26.16
	643	**130**	**21,818**	**396,549**	**30,257**	**32,229**	**8,330**	**214**	**3,408**	**2,267**	**1,587**	**8,716**	**506,148**	**847.97**

*All unknown pipe diameters were assumed to be 8-inch to calculate the total inch-miles per subarea.

*All pipe segments in each subarea are accounted for, including all unmetered sewers.

O:\Dedham MA\2160019 - Town-Wide Flow Metering 2016\Report\Hydraulic Model Report\[Table 01 - Existing Sewer Summary.xls]Sewer Summary

TABLE 2
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM CONDUIT DATA

Conduit ID (C-Upstream Manhole)	Length (lf)	Manning's "n"	Slope	Sewer Pipe Diameter (in)
C-AA10	245	0.011	1.07	12
C-AA20	140	0.013	1.93	12
C-AA30	86	0.013	22.15	10
C-AA360	214	0.013	0.72	12
C-AA370	200	0.013	0.77	12
C-AA380	203	0.009	0.33	11.5
C-AA40	241	0.013	5.64	10
C-AA400	233	0.013	0.18	12
C-AA410	101	0.013	0.82	12
C-AA420	216	0.013	0.27	12
C-AA430	70	0.013	0.71	12
C-AA50	223	0.013	3.14	10
C-AA60	220	0.013	0.80	10
C-CC10	734	0.009	0.03	22
C-CC110	156	0.013	0.32	12
C-CC120	157	0.009	0.32	11.5
C-CC130	219	0.009	0.27	9.5
C-CC140	220	0.009	0.55	9.5
C-CC20	16	0.009	9.56	11.5
C-CC30	252	0.009	0.03	22
C-DD10	355	0.009	0.06	10
C-DD100	162	0.009	0.78	9.5
C-DD20	17	0.009	6.65	10
C-DD30	205	0.009	-0.08	10
C-DD90	14	0.009	13.43	10
C-EE10	222	0.013	0.28	12
C-EE11	200	0.009	0.43	11.5
C-EE16	25	0.009	1.72	11.5
C-FF10	206	0.013	0.97	15
C-FF20	41	0.009	0.49	14.5
C-GG10	175	0.009	0.19	15
C-GG100	312	0.009	0.13	14.5
C-GG130	1072	0.009	0.13	11.5
C-GG20	109	0.013	0.18	18
C-GG30	83	0.009	0.19	14.5
C-GG40	212	0.009	0.19	14.5
C-GG50	288	0.009	0.19	14.5
C-GG70	281	0.009	0.19	14.5

TABLE 2
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM CONDUIT DATA

Conduit ID (C-Upstream Manhole)	Length (lf)	Manning's "n"	Slope	Sewer Pipe Diameter (in)
C-GG80	305	0.009	0.13	14.5
C-GG90	313	0.009	0.13	14.5
C-HH10	119	0.009	0.19	11.5
C-HH110	170	0.009	0.34	12
C-HH130	146	0.009	0.32	12
C-HH15	144	0.013	0.35	12
C-HH150	246	0.013	2.51	10
C-HH160	194	0.013	2.84	10
C-HH170	307	0.013	3.75	10
C-HH20	123	0.013	0.68	12
C-HH230	140	0.011	0.34	12
C-HH235	196	0.009	0.34	11.5
C-HH240	197	0.013	0.23	12
C-HH250	141	0.013	0.07	12
C-HH30	262	0.009	0.93	11.5
C-HH40	236	0.009	0.32	12
C-HH60	247	0.009	0.33	12
C-HH70	222	0.009	3.32	10
C-JJ10	185	0.013	0.52	24
C-JJ1020	177	0.009	0.19	11.5
C-JJ1030	147	0.009	0.19	11.5
C-JJ1040	303	0.009	0.20	11.5
C-JJ1060	208	0.009	0.19	11.5
C-JJ1070	129	0.009	0.19	11.5
C-JJ1080	171	0.009	0.19	11.5
C-JJ1090	244	0.009	0.19	11.5
C-JJ120	258	0.009	0.48	23.5
C-JJ130	230	0.009	-0.12	23.5 x 35.5
C-JJ170	234	0.009	0.04	23.5 x 35.5
C-JJ200	288	0.009	0.35	23.5 x 35.5
C-JJ210	438	0.009	0.22	23.5 x 35.5
C-JJ230	346	0.009	0.08	23.5 x 35.5
C-JJ250	302	0.009	0.35	23.5 x 35.5
C-JJ270	288	0.009	0.07	23.5 x 35.5
C-JJ280	128	0.009	0.10	23.5 x 35.5
C-JJ370	268	0.009	0.25	23.5 x 35.5
C-JJ460	82	0.009	0.61	23.5
C-JJ470	248	0.009	0.16	23.5
C-JJ480	258	0.009	0.04	24

TABLE 2
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM CONDUIT DATA

Conduit ID (C-Upstream Manhole)	Length (lf)	Manning's "n"	Slope	Sewer Pipe Diameter (in)
C-JJ490	217	0.009	0.18	23.5
C-JJ570	239	0.009	0.17	23.5
C-JJ580	295	0.009	0.03	23.5
C-JJ590	174	0.009	0.17	23.5
C-JJ620	235	0.009	0.13	23.5
C-JJ630	53	0.009	0.19	23.5
C-JJ631	324	0.009	0.09	17.5
C-JJ640	278	0.013	0.11	24
C-JJ650	160	0.013	0.50	24
C-JJ660	77	0.013	0.08	24
C-JJ670	170	0.013	0.07	24
C-JJ700	240	0.009	0.54	17.5
C-JJ701	189	0.009	0.53	18
C-JJ702	97	0.009	0.36	18
C-JJ703	45	0.009	-4.11	18
C-JJ704	90	0.009	0.56	17.5
C-JJ710	234	0.009	0.23	17.5
C-JJ712	458	0.009	0.07	17.5
C-JJ720	264	0.009	0.10	17.5
C-JJ850	337	0.009	0.14	17.5
C-JJ860	283	0.009	0.13	17.5
C-JJ920	81	0.013	0.72	12
C-JJ925	254	0.009	0.03	11.5
C-JJ930	199	0.009	0.15	11.5
C-JJ940	191	0.009	0.37	12
C-JJ950	251	0.009	0.05	12
C-KK10	233	0.013	1.29	8
C-KK180	274	0.009	3.03	7.5
C-KK40	262	0.009	1.41	7.5
C-KK60	267	0.009	1.31	7.5
C-LL480	12	0.013	72.92	8
C-LL500	200	0.013	5.28	8
C-LL510	92	0.013	2.52	8
C-LL520	358	0.013	1.70	8
C-LL530	171	0.013	2.12	8
C-MM10	244	0.011	0.00	12
C-MM120	166	0.009	2.77	11.5
C-MM150	104	0.009	5.77	11.5
C-MM160	50	0.013	3.40	12

TABLE 2
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM CONDUIT DATA

Conduit ID (C-Upstream Manhole)	Length (lf)	Manning's "n"	Slope	Sewer Pipe Diameter (in)
C-MM20	30	0.009	16.00	11.5
C-MM30	269	0.009	2.38	11.5
C-MM40	53	0.013	5.47	12
C-OO10	121	0.013	0.07	24
C-OO100	77	0.013	0.07	24
C-OO1040	257	0.009	0.21	11.5
C-OO1050	328	0.009	0.14	11.5
C-OO1062	220	0.009	0.05	21
C-OO1065	227	0.009	0.04	21
C-OO1090	205	0.009	0.27	11.5
C-OO110	221	0.013	0.08	24
C-OO120	155	0.013	0.07	24
C-OO130	219	0.013	0.07	24
C-OO140	227	0.013	0.07	24
C-OO150	204	0.013	0.07	24
C-OO160	200	0.013	0.08	24
C-OO170	201	0.013	0.08	21
C-OO180	77	0.013	0.39	21
C-OO190	154	0.009	0.13	21
C-OO195	167	0.009	0.10	21
C-OO20	204	0.013	0.07	24
C-OO210	197	0.009	0.10	21
C-OO220	200	0.009	0.15	21
C-OO30	106	0.013	0.08	24
C-OO40	333	0.013	0.07	24
C-OO50	139	0.013	0.07	24
C-OO60	106	0.013	0.08	24
C-OO70	196	0.013	0.08	24
C-OO80	226	0.013	0.07	24
C-OO90	217	0.013	0.07	24
C-OO930	15	0.011	18.07	12
C-QQ09	214	0.011	0.23	16
C-QQ10	157	0.011	1.01	10
C-QQ100	200	0.013	1.15	15
C-QQ110	198	0.013	0.96	15
C-QQ120	264	0.013	1.67	12
C-QQ20	146	0.009	0.60	14.5
C-QQ30	223	0.009	0.27	14.5
C-QQ40	236	0.009	0.25	14.5

TABLE 2
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM CONDUIT DATA

Conduit ID (C-Upstream Manhole)	Length (lf)	Manning's "n"	Slope	Sewer Pipe Diameter (in)
C-QQ50	191	0.009	0.21	14.5
C-QQ60	131	0.009	0.38	14.5
C-QQ70	77	0.013	0.65	15
C-QQ80	199	0.009	2.66	14.5
C-QQ90	201	0.013	2.99	15
C-RR10	172	0.013	2.79	12
C-RR20	310	0.013	1.10	12
C-SS135	223	0.009	0.48	21
C-SS140	264	0.013	0.63	12
C-SS15	322	0.009	0.03	21
C-SS150	78	0.013	0.26	12
C-SS160	347	0.009	0.29	11.5
C-SS170	222	0.009	0.28	11.5
C-SS25	65	0.009	0.34	21
C-SS35	135	0.009	0.50	21
C-SS45	83	0.009	0.37	21
C-SS85	162	0.009	1.35	21
C-SS95	243	0.009	0.45	21
C-TT10	313	0.013	0.29	15
C-TT20	163	0.013	0.18	15
C-TT25	147	0.013	0.50	15
C-TT30	97	0.013	0.33	15
C-TT35	122	0.013	3.30	12
C-TT40	157	0.013	3.31	12
C-TT45	185	0.013	5.87	12
C-TT50	147	0.013	1.73	12
C-UU10	200	0.013	0.16	12
C-VV10	240	0.009	0.21	14.5
C-VV30	159	0.009	0.44	14.5
C-VV340	271	0.009	0.38	14.5
C-VV380	169	0.009	0.39	14.5
C-VV390	230	0.009	0.39	14.5
C-VV40	163	0.009	0.25	14.5
C-VV400	199	0.009	0.10	14.5
C-VV410	183	0.009	0.62	14.5
C-VV420	242	0.009	0.52	14.5
C-VV50	69	0.009	0.58	14.5
C-WW100	108	0.009	0.22	14.5
C-WW110	259	0.009	0.15	14.5

TABLE 2
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM CONDUIT DATA

Conduit ID (C-Upstream Manhole)	Length (lf)	Manning's "n"	Slope	Sewer Pipe Diameter (in)
C-WW120	111	0.009	0.09	14.5
C-WW130	214	0.009	0.42	14.5
C-WW140	161	0.009	0.19	14.5
C-WW150	165	0.013	0.36	15
C-WW155	72	0.013	0.11	15
C-WW160	65	0.013	0.42	15
C-WW170	113	0.013	0.13	15
C-WW180	242	0.013	0.25	15
C-WW20	156	0.013	0.71	18
C-WW30	71	0.013	0.70	15
C-WW410	250	0.013	0.36	12
C-WW420	249	0.009	0.08	11.5
C-WW430	254	0.013	0.06	12
C-WW440	502	0.013	0.20	12
C-WW450	264	0.011	0.09	12
C-WW460	35	0.011	0.09	12
C-WW470	135	0.013	0.17	12
C-WW480	214	0.013	0.09	12
C-WW80	157	0.009	0.32	14.5
C-WW90	92	0.009	0.72	14.5
C-YY10	205	0.013	0.03	12
TOTAL	42,797			

TABLE 3
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM JUNCTION DATA

Junction Name (Manhole ID)	Rim Elevation	Crown Elevation	Invert Elevation
AA10	90.55	78.30	77.30
AA20	95.84	81.00	80.00
AA30	107.00	99.91	99.08
AA360	94.87	82.54	81.54
AA370	94.00	84.08	83.08
AA380	93.00	84.75	83.75
AA40	121.00	113.50	112.67
AA400	95.00	85.17	84.17
AA410	97.00	86.00	85.00
AA420	97.00	86.58	85.58
AA430	97.00	87.08	86.08
AA5	90.00	75.67	74.67
AA50	128.00	120.50	119.67
AA60	132.00	122.25	121.42
CC05	91.00	76.13	74.30
CC10	85.30	76.35	74.52
CC110	94.00	81.70	80.70
CC120	94.00	82.20	81.20
CC130	93.00	82.63	81.80
CC140	93.00	83.83	83.00
CC20	92.00	81.20	80.20
CC30	92.00	79.67	74.60
DD10	92.00	75.65	74.82
DD100	93.00	84.28	83.45
DD20	98.00	76.78	75.95
DD30	93.00	81.13	75.78
DD90	93.00	83.01	82.18
EE10	92.00	80.30	79.30
EE11	89.90	81.15	80.15
EE16	91.44	81.58	80.58
FF10	91.12	79.95	78.70
FF20	91.27	80.15	78.90
GG10	94.50	84.67	83.17
GG100	89.40	87.45	86.20
GG130	108.60	88.60	87.60
GG20	95.11	84.87	83.37

TABLE 3
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM JUNCTION DATA

Junction Name (Manhole ID)	Rim Elevation	Crown Elevation	Invert Elevation
GG30	90.90	84.78	83.53
GG40	86.80	85.18	83.93
GG50	87.25	85.72	84.47
GG70	92.40	86.25	85.00
GG80	88.90	86.63	85.38
GG90	88.70	87.04	85.79
HH10	94.00	88.50	87.50
HH110	107.26	92.35	91.35
HH130	104.90	92.82	91.82
HH15	100.00	89.00	88.00
HH150	106.60	98.83	98.00
HH160	112.50	104.33	103.50
HH170	118.25	115.83	115.00
HH20	97.33	89.33	88.33
HH230	100.60	89.48	88.48
HH235	97.90	90.15	89.15
HH240	97.80	90.60	89.60
HH250	97.10	90.70	89.70
HH30	108.06	91.77	90.77
HH40	104.33	92.53	91.53
HH60	99.32	93.34	92.34
HH70	119.22	100.53	99.70
II360	87.80	72.38	70.38
JJ10	84.20	73.34	71.34
JJ1020	98.60	85.97	84.97
JJ1030	99.00	86.25	85.25
JJ1040	97.80	86.84	85.84
JJ1060	95.30	87.24	86.24
JJ1070	96.00	87.49	86.49
JJ1080	91.90	87.81	86.81
JJ1090	91.30	88.27	87.27
JJ120	91.25	74.58	72.20
JJ130	91.90	74.30	72.30
JJ170	92.40	74.40	72.40
JJ200	92.00	75.40	73.40
JJ210	94.10	76.37	74.37

TABLE 3
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM JUNCTION DATA

Junction Name (Manhole ID)	Rim Elevation	Crown Elevation	Invert Elevation
JJ230	94.20	76.64	74.64
JJ250	95.00	77.70	75.70
JJ270	95.10	77.90	75.90
JJ280	97.87	78.03	76.03
JJ370	94.92	78.70	76.70
JJ460	93.90	79.20	77.20
JJ470	94.60	79.60	77.60
JJ480	92.10	79.70	77.70
JJ490	97.50	80.10	78.10
JJ570	94.20	80.50	78.50
JJ580	91.00	80.60	78.60
JJ590	90.00	80.90	78.90
JJ620	91.11	81.20	79.20
JJ630	90.70	81.30	79.30
JJ631	93.10	81.10	79.60
JJ640	89.48	81.50	79.50
JJ650	91.16	82.31	80.30
JJ660	91.72	82.37	80.37
JJ670	92.06	82.49	80.49
JJ700	94.90	82.40	80.90
JJ701	97.00	83.40	81.90
JJ702	97.00	83.75	82.25
JJ703	95.50	81.90	80.40
JJ704	94.90	82.40	80.90
JJ710	94.60	82.93	81.43
JJ712	97.00	83.25	81.75
JJ720	97.50	83.50	82.00
JJ850	95.30	83.96	82.46
JJ860	95.30	84.34	82.84
JJ920	94.50	84.42	83.42
JJ925	93.00	84.50	83.50
JJ930	93.40	84.80	83.80
JJ940	96.20	85.50	84.50
JJ950	102.30	85.63	84.63
KK10	81.40	75.47	74.80
KK180	95.50	87.47	86.80

TABLE 3
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM JUNCTION DATA

Junction Name (Manhole ID)	Rim Elevation	Crown Elevation	Invert Elevation
KK40	87.70	79.17	78.50
KK60	92.90	82.67	82.00
LL10	77.60	60.90	59.90
LL430	82.70	72.47	71.80
LL470	84.86	68.21	67.54
LL480	84.73	76.96	76.29
LL500	93.90	87.52	86.85
LL510	96.29	89.84	89.17
LL520	103.27	95.92	95.25
LL530	108.13	99.55	98.88
MM10	77.30	60.90	59.90
MM120	89.80	79.60	78.60
MM150	93.00	85.60	84.60
MM160	97.10	87.30	86.30
MM20	77.40	65.70	64.70
MM30	83.90	72.10	71.10
MM40	84.30	75.00	74.00
OO10	92.32	82.58	80.58
OO100	88.90	83.75	81.75
OO1040	98.69	88.24	87.24
OO1050	106.11	88.71	87.71
OO1062	92.67	85.86	84.11
OO1065	97.33	85.95	84.20
OO1090	103.48	89.27	88.27
OO110	88.70	83.92	81.92
OO120	90.60	84.03	82.03
OO130	89.20	84.19	82.19
OO140	92.83	84.35	82.35
OO150	93.26	84.50	82.50
OO160	95.39	84.65	82.65
OO170	96.91	84.55	82.80
OO180	97.31	84.85	83.10
OO190	96.68	85.08	83.30
OO195	96.00	85.25	83.50
OO20	90.10	82.73	80.73
OO210	94.60	85.45	83.70

TABLE 3
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM JUNCTION DATA

Junction Name (Manhole ID)	Rim Elevation	Crown Elevation	Invert Elevation
OO220	93.38	85.75	84.00
OO30	91.20	82.81	80.81
OO40	89.10	83.05	81.05
OO50	91.80	83.15	81.15
OO60	91.00	83.23	81.23
OO70	91.90	83.38	81.38
OO80	88.80	83.54	81.36
OO90	89.20	83.70	81.70
OO930	93.98	87.71	86.71
QQ08	51.25	44.17	42.84
QQ09	51.24	44.67	43.34
QQ10	51.22	46.17	44.92
QQ100	69.48	63.25	62.00
QQ110	70.52	65.15	63.90
QQ120	79.41	69.30	68.30
QQ20	54.77	47.05	45.80
QQ30	53.52	47.65	46.40
QQ40	53.97	48.25	47.00
QQ50	54.80	48.65	47.40
QQ60	55.07	49.15	47.90
QQ70	55.95	49.65	48.40
QQ80	61.85	54.95	53.70
QQ90	69.51	60.95	59.70
RR10	82.34	74.10	73.10
RR20	85.11	77.50	76.50
SS135	101.25	91.58	89.83
SS140	100.31	92.50	91.50
SS15	94.90	86.03	84.28
SS150	100.59	92.70	91.70
SS160	102.42	93.70	92.70
SS170	101.56	94.31	93.31
SS25	94.33	86.25	84.50
SS35	95.00	86.92	85.17
SS45	95.40	87.23	85.48
SS85	96.33	89.41	87.66
SS95	97.67	90.50	88.75

TABLE 3
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM JUNCTION DATA

Junction Name (Manhole ID)	Rim Elevation	Crown Elevation	Invert Elevation
TT10	49.00	46.65	45.40
TT20	52.20	46.95	45.70
TT25	51.80	47.69	46.44
TT30	56.33	48.01	46.76
TT35	59.20	51.78	50.78
TT40	65.40	56.98	55.98
TT45	74.90	67.83	66.83
TT50	78.00	70.37	69.37
UU10	103.24	94.62	93.62
VV10	46.84	39.05	37.80
VV30	48.79	39.75	38.50
VV340	46.93	41.59	40.34
VV380	46.21	42.25	41.00
VV390	49.55	43.15	41.90
VV40	53.10	40.15	38.90
VV400	54.11	43.35	42.10
VV410	47.83	44.48	43.23
VV420	52.69	45.74	44.49
VV50	54.25	40.55	39.30
WW10	45.28	37.20	35.70
WW100	47.72	39.45	38.20
WW110	47.75	39.85	38.60
WW120	47.77	39.95	38.70
WW130	47.12	40.85	39.60
WW140	47.09	41.15	39.90
WW150	47.70	41.75	40.50
WW155	48.00	41.83	40.58
WW160	48.46	42.10	40.85
WW170	49.56	42.25	41.00
WW180	51.80	42.85	41.60
WW20	48.42	38.30	36.80
WW30	49.40	38.55	37.30
WW410	48.44	43.50	42.50
WW420	46.91	43.70	42.70
WW430	46.29	43.84	42.84
WW440	46.94	44.84	43.84

TABLE 3
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
SYSTEM JUNCTION DATA

Junction Name (Manhole ID)	Rim Elevation	Crown Elevation	Invert Elevation
WW450	47.83	45.07	44.07
WW460	47.36	45.10	44.10
WW470	51.10	45.33	44.33
WW480	50.73	45.53	44.53
WW80	48.19	38.55	37.30
WW90	47.96	39.21	37.96
YY10	51.69	45.59	44.59

TABLE 4
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 1 SCENARIO RESULTS
PEAK VELOCITY BELOW 1.4 FPS

Conduit ID (C-Upstream Manhole)	Design Flow (cfs)	Conduit Design Velocity (ft/s)	Pipe Size (in)	Maximum Computed Flow (cfs)	Maximum Computed Velocity (ft/s)
C-AA360	3.02	3.85	12	0.03	1.21
C-AA370	3.13	3.98	12	0.03	1.16
C-AA380	2.64	3.66	11	0.03	1.12
C-AA400	1.51	1.93	12	0.02	0.64
C-AA410	3.23	4.11	12	0.02	0.93
C-AA420	1.85	2.35	12	0.02	0.64
C-AA430	3.01	3.83	12	0.02	1.00
C-AA60	1.95	3.58	10	0.01	0.92
C-CC10	4.48	1.70	22	0.16	0.80
C-CC110	2.02	2.57	12	0.06	1.02
C-CC30	4.61	1.75	22	0.16	0.85
C-DD10	0.79	1.44	10	0.04	0.64
C-DD30	0.91	1.67	10	0.04	0.34
C-EE10	1.90	2.42	12	0.06	0.99
C-GG10	4.05	3.30	15	0.08	1.18
C-GG100	3.09	2.69	14	0.06	1.06
C-GG130	1.66	2.30	11	0.06	1.06
C-GG20	4.50	2.55	18	0.08	0.93
C-GG30	3.74	3.26	14	0.07	1.21
C-GG40	3.70	3.23	14	0.07	1.25
C-GG50	3.69	3.22	14	0.07	1.25
C-GG70	3.70	3.23	14	0.07	1.25
C-GG80	3.01	2.62	14	0.06	1.02
C-GG90	3.08	2.69	14	0.06	1.06
C-HH110	3.01	3.83	12	0.01	0.64
C-HH130	2.92	3.72	12	0.01	0.80
C-HH15	2.10	2.67	12	0.01	0.49
C-HH150	3.47	6.37	10	0.01	1.33
C-HH160	3.69	6.76	10	0.01	1.38
C-HH230	2.47	3.14	12	0.01	0.76
C-HH235	2.68	3.72	11	0.01	0.88
C-HH240	1.70	2.17	12	0.01	0.50
C-HH250	0.95	1.21	12	0.01	0.32
C-JJ630	13.41	4.45	23	0.23	0.83
C-JJ631	4.28	2.56	17	0.23	1.29
C-JJ670	6.01	1.91	24	0.64	1.32
C-JJ703	30.76	17.41	18	0.22	-0.70
C-JJ704	10.48	6.28	17	0.22	0.68
C-JJ712	3.72	2.23	17	0.22	1.21
C-JJ720	4.33	2.59	17	0.21	1.30
C-JJ925	0.81	1.13	11	0.12	0.91

TABLE 4
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 1 SCENARIO RESULTS
PEAK VELOCITY BELOW 1.4 FPS

Conduit ID (C-Upstream Manhole)	Design Flow (cfs)	Conduit Design Velocity (ft/s)	Pipe Size (in)	Maximum Computed Flow (cfs)	Maximum Computed Velocity (ft/s)
C-JJ930	1.78	2.47	11	0.12	1.31
C-JJ950	1.17	1.49	12	0.12	0.98
C-MM10	0.13	0.17	12	0.05	0.32
C-OO10	6.17	1.96	24	0.64	1.28
C-OO100	5.76	1.83	24	0.62	1.23
C-OO1062	5.12	2.13	21	0.18	0.79
C-OO1065	4.56	1.89	21	0.18	0.87
C-OO110	6.27	2.00	24	0.62	1.26
C-OO120	6.03	1.92	24	0.62	1.25
C-OO130	6.11	1.95	24	0.62	1.25
C-OO140	6.01	1.91	24	0.62	1.24
C-OO150	6.13	1.95	24	0.62	1.24
C-OO160	6.20	1.97	24	0.62	1.25
C-OO170	4.33	1.80	21	0.62	1.30
C-OO20	6.13	1.95	24	0.64	1.26
C-OO30	6.21	1.98	24	0.64	1.27
C-OO40	6.07	1.93	24	0.64	1.25
C-OO50	6.07	1.93	24	0.63	1.25
C-OO60	6.21	1.98	24	0.63	1.26
C-OO70	6.26	1.99	24	0.63	1.27
C-OO80	6.02	1.92	24	0.62	1.24
C-OO90	6.14	1.96	24	0.62	1.25
C-QQ09	4.38	3.14	16	0.12	1.37
C-SS15	3.61	1.50	21	0.18	0.83
C-SS150	1.80	2.30	12	0.12	1.27
C-TT10	3.48	2.84	15	0.12	1.19
C-TT20	2.77	2.26	15	0.12	1.11
C-TT30	3.71	3.02	15	0.12	1.36
C-UU10	1.40	1.79	12	0.07	0.91
C-VV400	2.70	2.36	14	0.12	1.14
C-WW120	2.56	2.23	14	0.15	1.24
C-WW155	2.15	1.75	15	0.14	1.06
C-WW170	2.35	1.92	15	0.14	1.05
C-WW180	3.22	2.62	15	0.14	1.26
C-WW420	1.30	1.80	11	0.12	1.11
C-WW430	0.84	1.06	12	0.12	0.77
C-WW440	1.59	2.02	12	0.11	1.11
C-WW450	1.24	1.58	12	0.11	0.97
C-WW460	1.23	1.57	12	0.09	0.83
C-WW470	1.47	1.87	12	0.09	1.01
C-WW480	1.09	1.39	12	0.09	0.84

TABLE 4
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 1 SCENARIO RESULTS
PEAK VELOCITY BELOW 1.4 FPS

Conduit ID (C-Upstream Manhole)	Design Flow (cfs)	Conduit Design Velocity (ft/s)	Pipe Size (in)	Maximum Computed Flow (cfs)	Maximum Computed Velocity (ft/s)
C-YY10	0.61	0.78	12	0.09	0.63
TOTAL	83				

TABLE 5
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 1 SCENARIO RESULTS
SURCHARGE LOCATIONS

Junction Name Manhole ID	Ground Elevation (ft)	Uppermost PipeCrown Elevation (ft)	Maximum Junction Elevation (ft)	Feet of Surcharge at Max Elevation	Freeboard of Node (ft)
JJ703	95.50	81.90	82.42	0.52	13.08
JJ704	94.90	82.40	82.42	0.06	12.48
TOTAL	2				

TABLE 6
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 2 SCENARIO RESULTS
PEAK VELOCITY BELOW 1.4 FPS

Conduit ID (C-Upstream Manhole)	Design Flow (cfs)	Conduit Design Velocity (ft/s)	Pipe Size (in)	Maximum Computed Flow (cfs)	Maximum Computed Velocity (ft/s)
C-AA400	1.51	1.93	12	0.08	0.94
C-AA410	3.23	4.11	12	0.05	1.36
C-AA420	1.85	2.35	12	0.05	0.95
C-AA60	1.95	3.58	10	0.04	1.35
C-CC10	4.48	1.70	22	0.56	1.16
C-CC110	2.02	2.57	12	0.12	1.26
C-CC30	4.61	1.75	22	0.56	1.37
C-DD10	0.79	1.44	10	0.22	1.10
C-DD30	0.91	1.67	10	0.22	0.97
C-GG20	4.50	2.55	18	0.22	1.31
C-HH110	3.01	3.83	12	0.02	1.04
C-HH130	2.92	3.72	12	0.02	1.10
C-HH15	2.10	2.67	12	0.02	0.64
C-HH230	2.47	3.14	12	0.02	0.98
C-HH235	2.68	3.72	11	0.02	1.12
C-HH240	1.70	2.17	12	0.01	0.64
C-HH250	0.95	1.21	12	0.01	0.42
C-JJ630	13.41	4.45	23	0.64	1.00
C-JJ703	30.76	17.41	18	0.60	-0.99
C-JJ704	10.48	6.28	17	0.60	0.75
C-JJ925	0.81	1.13	11	0.29	1.27
C-JJ950	1.17	1.49	12	0.28	1.34
C-MM10	0.13	0.17	12	0.26	0.54
C-SS15	3.61	1.50	21	0.71	1.34
C-UU10	1.40	1.79	12	0.19	1.25
C-WW430	0.84	1.06	12	0.44	1.20
C-WW460	1.23	1.57	12	0.35	1.19
C-WW480	1.09	1.39	12	0.34	1.26
C-YY10	0.61	0.78	12	0.31	1.03
TOTAL	29				

TABLE 7
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 2 SCENARIO RESULTS
SURCHARGE LOCATIONS

Junction Name Manhole ID	Ground Elevation (ft)	Uppermost PipeCrown Elevation (ft)	Maximum Junction Elevation (ft)	Feet of Surcharge at Max Elevation	Freeboard of Node (ft)
JJ703	95.50	81.90	82.52	0.62	12.98
JJ704	94.90	82.40	82.52	0.16	12.38
TOTAL	2				

TABLE 8
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 2 SCENARIO RESULTS
FLOW RATIO ABOVE 1

Conduit Name (C-Upstream Manhole)	Design Flow (cfs)	Maximum Computed Flow (cfs)	Ratio of Max. to Design Flow
C-MM10	0.13	0.26	1.92
TOTAL	1		

TABLE 9
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 3 SCENARIO RESULTS
PEAK VELOCITY BELOW 1.4 FPS

Conduit ID (C-Upstream Manhole)	Design Flow (cfs)	Conduit Design Velocity (ft/s)	Pipe Size (in)	Maximum Computed Flow (cfs)	Maximum Computed Velocity (ft/s)
C-AA360	3.02	3.85	12	0.04	1.34
C-AA370	3.13	3.98	12	0.04	1.29
C-AA380	2.64	3.66	11	0.04	1.25
C-AA400	1.51	1.93	12	0.03	0.71
C-AA410	3.23	4.11	12	0.02	1.02
C-AA420	1.85	2.35	12	0.02	0.71
C-AA430	3.01	3.83	12	0.02	1.11
C-AA60	1.95	3.58	10	0.02	1.01
C-CC10	4.48	1.70	22	0.91	1.33
C-CC110	2.02	2.57	12	0.12	1.27
C-DD10	0.79	1.44	10	0.16	0.69
C-DD30	0.91	1.67	10	0.15	0.79
C-GG20	4.50	2.55	18	0.25	1.36
C-HH110	3.01	3.83	12	0.03	0.98
C-HH130	2.92	3.72	12	0.04	1.23
C-HH15	2.10	2.67	12	0.04	0.75
C-HH230	2.47	3.14	12	0.04	1.16
C-HH235	2.68	3.72	11	0.04	1.33
C-HH240	1.7	2.17	12	0.02	0.76
C-HH250	0.95	1.21	12	0.02	0.51
C-JJ703	30.76	17.41	18	1.16	-1.29
C-JJ704	10.48	6.28	17	1.15	1.18
C-JJ712	3.72	2.23	17	1.01	1.35
C-MM10	0.13	0.17	12	0.67	0.83
C-WW460	1.23	1.57	12	0.70	1.32
C-YY10	0.61	0.78	12	0.57	1.28
TOTAL	26				

TABLE 10
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 3 SCENARIO RESULTS
PEAK VELOCITY ABOVE 10.0 FPS

Conduit ID (C-Upstream Manhole)	Design Flow (cfs)	Conduit Design Velocity (ft/s)	Pipe Size (in)	Maximum Computed Flow (cfs)	Maximum Computed Velocity (ft/s)
C-MM20	18.36	25.47	12	0.64	10.70
TOTAL	1				

TABLE 11
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 3 SCENARIO RESULTS
SURCHARGE LOCATIONS

Junction Name Manhole ID	Ground Elevation (ft)	Uppermost PipeCrown Elevation (ft)	Maximum Junction Elevation (ft)	Feet of Surcharge at Max Elevation	Freeboard of Node (ft)
JJ703	95.50	81.90	82.62	0.72	12.88
JJ704	94.90	82.40	82.63	0.27	12.27
MM10	77.30	60.90	61.00	0.10	16.30
TOTAL	3				

TABLE 12
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 3 SCENARIO RESULTS
FLOW RATIO ABOVE 1

Conduit Name (C-Upstream Manhole)	Design Flow (cfs)	Maximum Computed Flow (cfs)	Ratio of Max. to Design Flow
C-WW430	0.84	1.02	1.22
TOTAL	1		

TABLE 13
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 4 SCENARIO RESULTS
PEAK VELOCITY BELOW 1.4 FPS

Conduit ID (C-Upstream Manhole)	Design Flow (cfs)	Conduit Design Velocity (ft/s)	Pipe Size (in)	Maximum Computed Flow (cfs)	Maximum Computed Velocity (ft/s)
C-AA360	3.02	3.85	12	0.05	1.37
C-AA370	3.13	3.98	12	0.04	1.33
C-AA380	2.64	3.66	11	0.04	1.28
C-AA400	1.51	1.93	12	0.03	0.73
C-AA410	3.23	4.11	12	0.02	1.05
C-AA420	1.85	2.35	12	0.02	0.73
C-AA430	3.01	3.83	12	0.03	1.13
C-AA60	1.95	3.58	10	0.02	1.04
C-DD10	0.79	1.44	10	0.36	1.00
C-DD30	0.91	1.67	10	0.35	1.25
C-GG10	4.05	3.30	15	0.24	1.25
C-GG20	4.50	2.55	18	0.23	1.31
C-HH110	3.01	3.83	12	0.04	1.06
C-HH130	2.92	3.72	12	0.05	1.33
C-HH15	2.10	2.67	12	0.05	0.80
C-HH230	2.47	3.14	12	0.05	1.23
C-HH240	1.70	2.17	12	0.03	0.82
C-HH250	0.95	1.21	12	0.03	0.55
C-JJ703	30.76	17.41	18	1.62	-1.19
C-JJ712	3.72	2.23	17.5	1.37	1.31
C-MM10	0.13	0.17	12	1.01	1.23
TOTAL	21				

TABLE 14
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 4 SCENARIO RESULTS
PEAK VELOCITY ABOVE 10.0 FPS

Conduit ID (C-Upstream Manhole)	Design Flow (cfs)	Conduit Design Velocity (ft/s)	Pipe Size (in)	Maximum Computed Flow (cfs)	Maximum Computed Velocity (ft/s)
C-MM20	18.36	25.47	11	0.85	11.32
C-LL480	6.53	18.70	8	0.39	10.26
TOTAL	2				

TABLE 15
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 4 SCENARIO RESULTS
SURCHARGE LOCATIONS

Junction Name Manhole ID	Ground Elevation (ft)	Uppermost PipeCrown Elevation (ft)	Maximum Junction Elevation (ft)	Feet of Surcharge at Max Elevation	Freeboard of Node (ft)
JJ703	95.50	81.90	0.79	82.69	12.81
JJ704	94.90	82.36	0.35	82.71	12.19
KK10	81.40	75.47	4.02	79.48	1.92
KK40	87.70	79.13	5.46	84.58	3.12
KK60	92.90	82.63	3.65	86.27	6.63
MM10	77.30	60.90	0.20	61.04	16.26
WW430	46.29	43.84	0.22	44.06	2.23
WW440	46.94	44.84	0.15	44.99	1.95
WW450	47.83	45.07	0.28	45.35	2.49
WW460	47.36	45.10	0.27	45.37	1.99
WW470	51.10	45.33	0.17	45.50	5.60
WW480	50.73	45.53	0.15	45.68	5.05
YY10	51.69	45.59	0.23	45.82	5.87
TOTAL	13				

TABLE 16
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 4 SCENARIO RESULTS
FLOW RATIO ABOVE 1.0

Conduit Name (C-Upstream Manhole)	Design Flow (cfs)	Maximum Computed Flow (cfs)	Ratio of Max. to Design Flow
C-JJ480	6.43	7.73	1.20
C-JJ580	5.69	6.44	1.13
C-JJ925	0.81	0.88	1.08
C-KK10	1.37	2.16	1.57
C-KK40	1.75	2.15	1.23
C-MM10	0.13	1.01	7.61
C-WW155	2.15	2.28	1.06
C-WW420	1.30	1.74	1.33
C-WW430	0.84	1.61	1.93
C-WW440	1.59	1.59	1.00
C-WW450	1.24	1.58	1.27
C-WW480	1.09	1.10	1.01
C-YY10	0.61	0.94	1.55
TOTAL	13		

TABLE 17
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 5 SCENARIO RESULTS
PEAK VELOCITY BELOW 1.4 FPS

Conduit ID (C-Upstream Manhole)	Design Flow (cfs)	Conduit Design Velocity (ft/s)	Pipe Size (in)	Maximum Computed Flow (cfs)	Maximum Computed Velocity (ft/s)
C-AA400	1.51	1.93	12	0.20	1.27
C-AA420	1.85	2.35	12	0.14	1.27
C-HH110	3.01	3.83	12	0.09	1.34
C-HH15	2.10	2.67	12	0.11	1.01
C-HH240	1.70	2.17	12	0.07	1.05
C-HH250	0.95	1.21	12	0.07	0.72
TOTAL	6				

TABLE 18
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 5 SCENARIO RESULTS
PEAK VELOCITY ABOVE 10.0 FPS

Conduit ID (C-Upstream Manhole)	Design Flow (cfs)	Conduit Design Velocity (ft/s)	Pipe Size (in)	Maximum Computed Flow (cfs)	Maximum Computed Velocity (ft/s)
C-LL480	6.53	18.70	8	0.90	13.11
C-MM20	18.36	25.47	11.5	1.32	11.99
C-OO930	12.66	16.11	12	2.97	11.24
C-AA30	10.30	18.90	10	0.83	10.25
C-MM150	11.02	15.29	11.5	1.44	10.01
TOTAL	5				

TABLE 19
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 5 SCENARIO RESULTS
SURCHARGE LOCATIONS

Junction Name Manhole ID	Ground Elevation (ft)	Uppermost PipeCrown Elevation (ft)	Maximum Junction Elevation (ft)	Feet of Surcharge at Max Elevation	Freeboard of Node (ft)
DD10	92.00	75.65	75.85	0.19	16.15
JJ480	92.10	79.70	79.72	0.02	12.39
JJ490	97.50	80.06	80.12	0.06	17.38
JJ570	94.20	80.46	80.46	0.01	13.74
JJ580	91.00	80.56	80.87	0.31	10.13
JJ590	90.00	80.86	81.10	0.24	8.90
JJ620	91.11	81.20	81.41	0.21	9.71
JJ630	90.70	81.26	81.41	0.15	9.29
JJ631	93.10	81.06	81.59	0.53	11.51
JJ640	89.48	81.50	81.74	0.24	7.74
JJ703	95.50	81.90	82.89	0.99	12.61
JJ704	94.90	82.36	82.93	0.58	11.97
JJ710	94.60	82.89	83.05	0.16	11.56
JJ712	97.00	83.21	83.22	0.01	13.78
KK10	81.40	75.47	81.40	5.93	0.00
KK180	95.50	87.43	89.15	1.72	6.35
KK40	87.70	79.13	87.70	8.58	0.00
KK60	92.90	82.63	90.25	7.62	2.66
MM10	77.30	60.90	61.33	0.62	15.97
OO100	88.90	83.75	84.16	0.41	4.74
OO1040	98.69	88.20	88.91	0.71	9.78
OO1050	106.11	88.67	90.06	1.39	16.05
OO1062	92.67	85.86	86.68	0.82	6.00
OO1065	97.33	85.95	86.74	0.79	10.59
OO1090	103.48	89.23	90.77	1.54	12.71
OO110	88.70	83.92	84.38	0.46	4.32
OO120	90.60	84.03	84.54	0.51	6.06
OO130	89.20	84.19	84.77	0.58	4.43
OO140	92.83	84.35	85.01	0.66	7.81
OO150	93.26	84.50	85.22	0.72	8.04
OO160	95.40	84.65	85.42	0.77	9.98
OO170	96.91	84.55	85.81	1.26	11.10
OO180	97.31	84.85	85.96	1.11	11.34
OO190	96.68	85.08	86.10	1.02	10.58
OO195	96.00	85.25	86.26	1.01	9.74
OO210	94.60	85.45	86.43	0.98	8.16
OO220	93.38	85.75	86.61	0.86	6.76
OO40	89.10	83.05	83.13	0.08	5.97
OO50	91.80	83.15	83.29	0.14	8.51
OO60	91.00	83.23	83.42	0.19	7.58
OO70	91.90	83.38	83.64	0.26	8.26

TABLE 19
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 5 SCENARIO RESULTS
SURCHARGE LOCATIONS

Junction Name Manhole ID	Ground Elevation (ft)	Uppermost PipeCrown Elevation (ft)	Maximum Junction Elevation (ft)	Feet of Surcharge at Max Elevation	Freeboard of Node (ft)
OO80	88.80	83.54	83.87	0.33	4.93
OO90	89.20	83.70	84.08	0.38	5.12
SS15	94.90	86.03	86.82	0.79	8.08
SS25	94.33	86.25	86.84	0.59	7.49
WW410	48.44	43.50	43.54	0.04	4.90
WW420	46.91	43.70	44.14	0.44	2.77
WW430	46.29	43.84	45.02	1.18	1.27
WW440	46.94	44.84	46.71	1.87	0.23
WW450	47.83	45.07	47.32	2.26	0.51
WW460	47.36	45.10	47.36	2.26	0.00
WW470	51.10	45.33	47.71	2.39	3.39
WW480	50.73	45.53	48.25	2.73	2.48
YY10	51.69	45.59	48.65	3.06	3.04
TOTAL	54				

TABLE 20
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 5 SCENARIO RESULTS
FLOW RATIO ABOVE 1.0

Conduit Name (C-Upstream Manhole)	Design Flow (cfs)	Maximum Computed Flow (cfs)	Ratio of Max. to Design Flow
C-JJ170	10.50	15.30	1.46
C-JJ230	14.18	15.16	1.07
C-JJ270	13.38	15.02	1.12
C-JJ470	12.40	13.75	1.11
C-JJ480	6.43	13.75	2.14
C-JJ490	13.26	13.56	1.02
C-JJ580	5.69	11.76	2.07
C-JJ620	11.03	11.69	1.06
C-JJ640	7.43	8.19	1.10
C-JJ660	6.31	8.15	1.29
C-JJ670	6.01	8.14	1.35
C-JJ925	0.81	1.65	2.03
C-JJ950	1.17	1.58	1.35
C-KK10	1.37	2.46	1.79
C-KK40	1.75	2.47	1.41
C-MM10	0.13	1.63	12.38
C-OO10	6.17	8.12	1.32
C-OO100	5.76	7.40	1.28
C-OO1040	2.08	2.96	1.42
C-OO1050	1.74	2.74	1.58
C-OO1090	2.40	2.79	1.17
C-OO110	6.27	7.39	1.18
C-OO120	6.03	7.39	1.23
C-OO130	6.11	7.39	1.21
C-OO140	6.01	7.37	1.23
C-OO150	6.13	7.21	1.18
C-OO160	6.20	7.13	1.15
C-OO170	4.33	7.05	1.63
C-OO20	6.13	8.08	1.32
C-OO30	6.21	8.07	1.30
C-OO40	6.07	8.05	1.33
C-OO50	6.07	8.04	1.32
C-OO60	6.21	8.02	1.29

TABLE 20
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 5 SCENARIO RESULTS
FLOW RATIO ABOVE 1.0

Conduit Name (C-Upstream Manhole)	Design Flow (cfs)	Maximum Computed Flow (cfs)	Ratio of Max. to Design Flow
C-OO70	6.26	8.00	1.28
C-OO80	6.02	7.43	1.24
C-OO90	6.14	7.42	1.21
C-SS15	3.61	3.74	1.04
C-SS150	1.80	2.38	1.32
C-WW120	2.56	3.28	1.28
C-WW155	2.15	3.04	1.41
C-WW170	2.35	2.92	1.24
C-WW410	2.14	2.32	1.08
C-WW420	1.30	2.31	1.79
C-WW430	0.84	2.16	2.59
C-WW440	1.59	2.15	1.36
C-WW450	1.24	2.22	1.79
C-WW460	1.23	1.67	1.37
C-WW470	1.47	1.84	1.25
C-WW480	1.09	1.82	1.67
C-YY10	0.61	1.60	2.62
TOTAL	50		

TABLE 21
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
MODEL 5 SCENARIO RESULTS
LOCATIONS EXPERIENCING SSO CONDITIONS

Flooded Junction	Flooded Junction Volume (cu.ft.)	Average Flooded Junction Outflow (cfs)
KK10	1,105.36	0.01
KK40	16,780.80	0.19
WW460	35,068.65	0.41
TOTAL	3	

TABLE 22
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
CONDUITS WITH FLOW RATIO ABOVE 1.0 WITHOUT UPSTREAM SURCHARGE CONDITIONS

SCENARIO	CONDUIT ID (C-Upstream manhole)
2 , 3	C-MM10
4	C-JJ480
4	C-JJ580
4	C-WW420
4, 5	C-JJ925
4, 5	C-WW155
5	C-JJ170
5	C-JJ230
5	C-JJ270
5	C-JJ470
5	C-JJ660
5	C-JJ670
5	C-JJ950
5	C-OO10
5	C-OO20
5	C-OO30
5	C-SS150
5	C-WW120
5	C-WW170
TOTAL	19

TABLE 23
TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL
2016 PRIORITY RE-EVALUATION 5-YEAR PROGRAM

Program Year	Calendar Year	Television Inspection, Manhole Inspections, Construction (Including Backlog)[1]		Building Inspections[1]		Lateral Liner Construction[1]		Recommended O&M[2]	Yearly Program Total[3]
1	2017	TT, KK, MM, RR, QQ	$495,500			DD, GG, QQ, TT	$180,000	$70,000	$745,500
2	2018	SS, VV, OO, WW, EE	$676,600			FF, HH, JJ, KK, VV	$185,000		$861,600
3	2019	CC, LL, II, JJ	$633,300	Precincts 1, 2, 3 and 7	$252,500	BB, LL, MM, UU	$125,000		$1,010,800
4	2020	NN, YY, UU, BB, GG, ZZ	$565,100			EE, II, NN, OO	$180,000		$745,100
5	2021	DD, HH, FF, AA, PP	$673,500						$673,500
									$4,036,500

NOTES: **1:** Costs for each investigation and construction phase are shown in present day value.

2: O&M costs include cleaning and inspection of pipe segments identified as concerns because of low/high flow velocities.

3: Yearly Program Total includes a 4.0% inflation per program year (Adjust table to reflect 4%)

O:\Dedham MA\2130225 - Year One Inflow Investigations\Reports\Model Report Tables\[2013 Re-Priority & Exisiting Sewer Summary.xls]Yearly Program

FIGURES

FIGURE 1

TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL

SEWER SYSTEM MODEL AREA

NOVEMBER, 2016 SCALE: NOTED

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FIGURE 2

TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL

CALIBRATION MODEL
AVERAGE DAILY DRY WEATHER FLOW
(WASTEWATER COMPONENT)

NOVEMBER, 2016 SCALE: NOTED

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FIGURE 3

TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL

AVERAGE DAILY DRY WEATHER FLOW
(WASTEWATER COMPONENT
PLUS PEAK INFILTRATION)

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Legend

- Pump Station
- MWRA Meter
- Flow Meter / MWRA Meter
- Flow Meter Location
- Sewer Manholes
- MWRA Sewer Nodes
- Flow Model Gravity Main
- Force Main
- MWRA Sewer Pipes
- Subarea Boundary

Model Scenario Number 3

- Surcharged Manhole
- Conduit with Peak Velocity Above 10.0 FPS
- Conduit with Peak Velocity Below 1.4 FPS
- Conduit with Flow Ratio Above 1

Dedham
Westwood
Canton
ZZ
AA
BB
CC
DD
EE
FF
GG
HH
II
JJ
KK
LL
MM
NN
OO
PP
QQ
RR
SS
TT
UU
VV
WW
XX
YY
JACKSON POND
WELD POND
MOTLEY POND
RODMAN POND
CHARLES RIVER
WIGMAN POND
LITTLE WIGMAN POND
SPRAGUE POND
NH-1
NH-2C
DE-BO-1C
AA5
DE-BO-3
DE-BO-2
DE-6
DE-1C
DE-4C
KK60
DE-8C
KK100
DE-2CR
QQ20
DE-CT-1C
WW10
1
2
3
4
135
128
109
95
1A
1
NEEDHAM AVENUE
HALE DRIVE
WEST STREET
LYONS STREET
NEEDHAM STREET
COUNTRY CLUB ROAD
WESTFIELD STREET
MEADOWBROOK ROAD
WHITCOMB ROAD
WARREN ROAD
COMMON STREET
HAVEN STREET
BEMIS ROAD
NICKERSON ROAD
CHANNING ROAD
GLENRIDGE ROAD
POLO FIELD LANE
DEERPATH LANE
ROBERT ROAD
VILLAGE AVENUE
WAMPATUCK ROAD
GUILD ROAD
ROWMAN PLACE
OLD FARM ROAD
CHESTNUT STREET
COUNTY STREET
HIGH STREET
BULLARD STREET
DEXTER STREET
DRESSER AVENUE
SAWYER DRIVE
LOWDER STREET
STONEY LEA ROAD
MARTIN BATES STREET
BATES COURT
PEARL STREET
CHURCH STREET
SCHOOL STREET
NEW COURT
MAPLE PLACE
SANDY VALLEY ROAD
HIGHLAND STREET
COOLIDGE LANE
WOODS END ROAD
KAREN PINES ROAD
CHUTE ROAD
MANNING ROAD
BEAR HILL
ANTHONY LANE
FAY ROAD
FAIR OAKS ROAD
ROCKY POND FARM ROAD
ORCHARD STREET
LEE TERRACE
WILSON AVENUE
ELM STREET
FOXDRIVE
ROBIN WOOD ROAD
ALLIED DRIVE
CAREMATRIX DRIVE
PRESIDENTS WAY
RUST CRAFT ROAD
WILLARD ROAD
CRESTON AVENUE
ALPENA AVENUE
CHESTER AVENUE
CRANSTON AVENUE
RIDGEWAY
WINSTEAD AVENUE
SOUTHGATE STREET
MASON STREET
LEDGEWOOD ROAD
VINCENT ROAD
HERITAGE HILL
FOX MEADOW LANE
GREENLODGE STREET
CRANBERRY LANE
INDIAN PATH
MAYFAIR DRIVE
QUARRY ROAD
FLINTLOCKE LANE
PATTY LEE LANE
WESLEY STREET
CAROL DRIVE
ROOSEVELT ROAD
FILLMORE ROAD
COACH LANE
MADISON STREET
PINE GROVE AVENUE
WALTERS AVENUE
CYNTHIA ROAD
MARGARET ROAD
JUDITH CIRCLE
BLUEBERRY HILL
UPLAND AVENUE
ELMAINE AVENUE
PRESTON STREET
TAYLOR AVENUE
BROWN TERRACE
LANTERN LANE
DEPOT STREET
TOLL HOUSE AVENUE
WESTON STREET
WAY
GLEN ROAD
HAMILTON AVENUE
PROSPECT STREET
METCALF STREET
MARION STREET
EASTERN AVENUE
JADE LANE
UNION PLACE
WASHINGTON STREET
WORTHINGTON STREET
RICHARDS STREET
COURT STREET
MARSH STREET
HARRIS STREET
STACY LANE
COLLEGE AVENUE
FORT LANE
BROOKDALE AVENUE
WILLOW STREET
DWIGHT STREET
SPRUCE STREET
LOWER EAST STREET
WILLIS STREET
SUMNER STREET
RIDGE AVENUE
SCHILLER ROAD
OAK STREET
LILAC LANE
NANCY ROAD
HITCHINS DRIVE
HARVEY DRIVE
GAFFNEY ROAD
MOUNT HOPE STREET
BIRCH HILL ROAD
WALDO STREET
GOULD STREET
MAVERICK STREET
BELKNAP STREET
CONGRESS PLACE
CLISBY AVENUE
BUSSEY STREET
PLATT STREET
WHITEHALL STREET
THOMAS STREET
WARE STREET
MERCHANTVILLE WAY
GLANCY LANE
LIBERTY LANE
LEWIS LANE
DEDHAM BOULEVARD
CHARLES LANE
HORE LANE
HIGH ROCK AVENUE
DARLING STREET
CENTRAL STREET
LEONARD STREET
BIRCH STREET
FLEMING STREET
ROWAN STREET
HANSON STREET
VETERANS ROAD
FLANAGAN PLACE
MILTON STREET
RIVER STREET
PREVEY TERRACE
FAIRVIEW STREET
COBBER LANE
DANDALE AVENUE
CIRCLE
WAY
MOUNT VERNON STREET
CHARLES CIRCLE
ETNA ROAD
LAMSON STREET
SPRAGUE STREET
WESTCHESTER CIRCLE
FRESNO ROAD
GREENSBORO ROAD
GLEN ROAD
BONNEY LANE
LAURIE LANE
GAINSVILLE ROAD
HILLSDALE ROAD
GRAUSLER ROAD
NELSON ROAD
COLWELL DRIVE
SCOTT CIRCLE
WESON WAY
CONVERY ROAD
BONHAM ROAD
HOLMES ROAD
GOSHEN ROAD
ALTOONA ROAD
HASTINGS ROAD
ARDMORE ROAD
BELOIT ROAD
TRENTON STREET
HELENA ROAD
SHERMAN ROAD
HOOPER ROAD
DURHAM ROAD
LEOMINSTER ROAD
MOSELEY ROAD
LANCASTER ROAD
MACDONALD STREET
BOSTON/PROVIDENCE TURNPIKE
MONROE STREET
LINCOLN STREET
SANDERSON AVENUE
BOULEVARD ROAD
THOMPSON STREET
DARTMOUTH AVENUE
NORWELL CIRCLE
WAY
MOUNT VERNON STREET
CHERRY LANE
BAILEY LANE
WOODLEIGH ROAD
WHITING AVENUE
CASS AVENUE
VICTORY LANE
HAZELNUT PLACE
MYRTLE STREET
SAWMILL LANE
FULTON STREET
MORSE AVENUE
WALNUT STREET
PURITAN LANE
ABBOTT ROAD
VAN BRUNT AVENUE
AUTUMN LANE
MICHAEL ROAD
VERNON PLACE
ELMVIEW PLACE
MOUNT VERNON STREET
JOYCE LANE
FELIX STREET
JERSEY STREET
YORK STREET
OHIO STREET
EAST STREET
CENTRAL AVENUE
POWERS LANE
WENTWORTH STREET
GIBSON AVENUE
WILDWOOD DRIVE
OSCAR'S WAY
MATTHEWS STREET
MILLS STREET
FAIRBANKS ROAD
TAFT LANE
DURANT AVENUE
STOUGHTON ROAD
NOBLE ROAD
STEPHEN LANE
ALDEN STREET
LOCUST STREET
POPLAR STREET
CRANE STREET
TOWER STREET
TURNER STREET
TARBOX STREET
PLEASANT STREET
AMES STREET
CLOUGH ROAD
FISHER ROAD
WAINWAY ROAD
BELLE AVENUE
FULLER STREET
BRIDGE STREET
BINGHAM AVENUE
CORBETT AVENUE
CUNNINGHAM ROAD
LYNCH AVENUE
MULBERRY LANE
EGAN TERRACE
EATON ROAD
LINDALE AVENUE
HILLSIDE ROAD
PARKER STAPLES ROAD
RIVERDALE ROAD
WOODLAWN STREET
TRIMOUNT STREET
BAWARD STREET
GRANDFIELD STREET
RIVERSIDE DRIVE
VINE ROCK STREET
ROSEMARY ROAD
CLAYBANK ROAD
JENNY LANE
STYLETTA DRIVE
VOLPE ROAD
COMMONWEALTH AVENUE
MARLBORO STREET
RIVERVIEW STREET
FAIRFIELD STREET
BEACON STREET
VIOLET AVENUE
KIELY ROAD
ROGERS AVENUE
ARGYLE AVENUE
HILLCREST AVENUE
BROOKSIDE AVENUE
CAMPUS DRIVE
PINE STREET
ROW AVENUE
BERKELEY ROAD
TRURO ROAD
DIXON AVENUE
ARBOR LANE
COLBURN STREET
HYDE PARK STREET
BISMARK STREET
GREENWOOD STREET
PARSONS STREET
BERLIN STREET
GARFIELD ROAD
STAFFORD STREET
HARDING TERRACE
DOGGETT CIRCLE
GOLBURN STREET

FIGURE 5

TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL

AVERAGE DAILY DRY WEATHER FLOW
PLUS FIVE-YEAR 24-HOUR
DESIGN STORM INFLOW

NOVEMBER, 2016 SCALE: NOTED

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FIGURE 6

TOWN OF DEDHAM, MASSACHUSETTS
SEWER SYSTEM HYDRAULIC FLOW MODEL

AVERAGE DAILY DRY WEATHER FLOW
PLUS FIVE-YEAR 24-HOUR DESIGN
STORM INFLOW PLUS PEAK INFILTRATION

NOVEMBER, 2016 SCALE: NOTED

Weston & Sampson

APPENDIX A

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 1
AVERAGE DAILY DRY WEATHER FLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow (cfs)	Average Daily Dry Weather Flow (gpd)
1	AA30	86	0.003	2,151
1	AA40	241	0.021	13,442
1	AA50	223	0.004	2,688
1	AA60	220	0.012	8,065
	TOTAL	**770**	**0.041**	**26,346**
2	AA360	214	0.007	4,301
2	AA370	200	0.000	0
2	AA380	203	0.003	2,151
2	AA400	233	0.007	4,301
2	AA410	101	0.000	0
2	AA420	216	0.000	0
2	AA430	70	0.015	9,678
	TOTAL	**1,237**	**0.032**	**20,432**
3	AA10	245	0.004	2,688
3	AA20	140	0.007	4,301
	TOTAL	**385**	**0.011**	**6,990**
4	DD10	355	0.000	284
4	DD100	162	0.039	25,246
4	DD20	17	0.000	284
4	DD30	205	0.000	284
4	DD90	14	0.000	284
	TOTAL	**753**	**0.041**	**26,381**
5	EE10	222	0.000	284
5	EE11	200	0.001	567
5	EE16	25	0.054	34,732
	TOTAL	**447**	**0.055**	**35,583**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 1
AVERAGE DAILY DRY WEATHER FLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow (cfs)	Average Daily Dry Weather Flow (gpd)
6	CC110	156	0.000	284
6	CC120	157	0.003	1,983
6	CC130	219	0.000	0
6	CC140	220	0.058	37,673
6	CC20	16	0.001	851
	TOTAL	**768**	**0.063**	**40,790**
7	CC10	734	0.000	0
7	CC30	252	0.000	0
	TOTAL	**986**	**0.000**	**0**
8	HH40	236	0.000	0
8	HH60	247	0.000	0
8	HH70	222	0.082	52,733
	TOTAL	**705**	**0.082**	**52,733**
9	HH110	170	0.000	0
9	HH130	146	0.000	0
9	HH150	246	0.000	0
9	HH160	194	0.000	0
9	HH170	307	0.008	5,145
	TOTAL	**1,063**	**0.008**	**5,145**
10	HH20	123	0.000	0
10	HH30	262	0.000	0
	TOTAL	**385**	**0.000**	**0**
11	HH15	144	0.000	0
11	HH230	140	0.000	0
11	HH235	196	0.004	2,572
11	HH240	197	0.000	0
11	HH250	141	0.006	3,858
	TOTAL	**818**	**0.010**	**6,431**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 1
AVERAGE DAILY DRY WEATHER FLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow (cfs)	Average Daily Dry Weather Flow (gpd)
12	HH10	119	0.000	0
12	JJ1020	177	0.002	1,253
12	JJ1030	147	0.001	835
12	JJ1040	303	0.001	835
12	JJ1060	208	0.004	2,505
12	JJ1070	129	0.001	418
12	JJ1080	171	0.001	418
12	JJ1090	244	0.000	0
12	JJ920	81	0.001	418
12	JJ925	254	0.001	418
12	JJ930	199	0.001	418
12	JJ940	191	0.001	835
12	JJ950	251	0.006	4,175
	TOTAL	**2,474**	**0.019**	**12,526**
13	GG10	175	0.001	418
13	GG100	312	0.000	0
13	GG130	1,072	0.061	39,398
13	GG20	109	0.006	3,940
13	GG30	83	0.000	0
13	GG40	212	0.000	0
13	GG50	288	0.000	0
13	GG70	281	0.009	5,910
13	GG80	305	0.000	0
13	GG90	313	0.000	0
	TOTAL	**3,150**	**0.077**	**49,664**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 1
AVERAGE DAILY DRY WEATHER FLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow (cfs)	Average Daily Dry Weather Flow (gpd)
14	JJ630	53	0.006	4,175
14	JJ631	324	0.001	835
14	JJ700	240	0.001	835
14	JJ701	189	0.001	835
14	JJ702	97	0.001	835
14	JJ703	45	0.001	835
14	JJ704	90	0.001	835
14	JJ710	234	0.010	6,680
14	JJ712	458	0.001	835
14	JJ720	264	0.001	835
14	JJ850	337	0.001	835
14	JJ860	283	0.008	5,428
	TOTAL	**2,614**	**0.037**	**23,799**
15	OO1040	257	0.004	2,394
15	OO1050	328	0.000	184
15	OO1090	205	0.428	276,702
15	OO930	15	0.000	184
	TOTAL	**805**	**0.432**	**279,465**
16	OO1062	220	0.001	921
16	OO1065	227	0.000	184
16	SS135	223	0.054	34,607
16	SS140	264	0.000	0
16	SS15	322	0.000	0
16	SS150	78	0.005	3,461
16	SS160	347	0.005	3,461
16	SS170	222	0.037	24,225
16	SS25	65	0.000	0
16	SS35	135	0.005	3,461
16	SS45	83	0.000	0
16	SS85	162	0.000	0
16	SS95	243	0.000	0
16	UU10	200	0.072	46,258
	TOTAL	**2,791**	**0.180**	**116,577**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 1
AVERAGE DAILY DRY WEATHER FLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow (cfs)	Average Daily Dry Weather Flow (gpd)
17	JJ640	278	0.001	418
17	JJ650	160	0.001	418
17	JJ660	77	0.001	418
17	JJ670	170	0.001	418
17	OO10	121	0.001	835
17	OO100	77	0.000	184
17	OO110	221	0.000	0
17	OO120	155	0.000	0
17	OO130	219	0.000	184
17	OO140	227	0.003	1,842
17	OO150	204	0.001	921
17	OO160	200	0.001	921
17	OO170	201	0.000	0
17	OO180	77	0.001	921
17	OO190	154	0.000	0
17	OO195	167	0.001	921
17	OO20	204	0.000	184
17	OO210	197	0.000	0
17	OO220	200	0.001	921
17	OO30	106	0.000	184
17	OO40	333	0.000	184
17	OO50	139	0.000	184
17	OO60	106	0.000	184
17	OO70	196	0.010	6,446
17	OO80	226	0.000	184
17	OO90	217	0.000	184
	TOTAL	**4,632**	**0.026**	**17,056**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 1
AVERAGE DAILY DRY WEATHER FLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow (cfs)	Average Daily Dry Weather Flow (gpd)
18	JJ460	82	0.000	0
18	JJ470	248	0.000	0
18	JJ480	258	0.012	7,612
18	JJ490	217	0.109	70,686
18	JJ570	239	0.002	1,087
18	JJ580	295	0.001	835
18	JJ590	174	0.001	835
18	JJ620	235	0.001	835
	TOTAL	**1,748**	**0.127**	**81,890**
19	FF10	206	0.003	2,175
19	FF20	41	0.055	35,322
	TOTAL	**247**	**0.058**	**37,497**
20	JJ10	185	0.006	3,999
20	JJ120	258	0.000	0
20	JJ130	230	0.000	0
20	JJ170	234	0.000	0
20	JJ200	288	0.000	0
20	JJ210	438	0.008	5,437
20	JJ230	346	0.000	0
20	JJ250	302	0.008	5,437
20	JJ270	288	0.000	0
20	JJ280	128	0.017	10,875
20	JJ370	268	0.008	5,437
	TOTAL	**2,965**	**0.048**	**31,186**
21	LL480	12	0.039	25,515
21	LL500	200	0.000	0
21	LL510	92	0.004	2,551
21	LL520	358	0.000	0
21	LL530	171	0.036	22,963
	TOTAL	**833**	**0.079**	**51,030**
22	KK60	267	0.033	21,264
	TOTAL	**267**	**0.033**	**21,264**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 1
AVERAGE DAILY DRY WEATHER FLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow (cfs)	Average Daily Dry Weather Flow (gpd)
23	KK180	274	0.015	9,839
	TOTAL	**274**	**0.015**	**9,839**
24	KK10	233	0.003	2,000
24	KK40	262	0.000	0
	TOTAL	**495**	**0.003**	**2,000**
25	MM10	244	0.002	1,000
25	MM120	166	0.002	1,000
25	MM150	104	0.000	0
25	MM160	50	0.037	23,667
25	MM20	30	0.002	1,000
25	MM30	269	0.002	1,000
25	MM40	53	0.005	2,999
	TOTAL	**916**	**0.047**	**30,666**
26	QQ09	214	0.000	0
26	QQ10	157	0.000	0
26	QQ100	200	0.000	86
26	QQ110	198	0.000	86
26	QQ120	264	0.007	4,548
26	QQ20	146	0.000	0
26	QQ30	223	0.000	0
26	QQ40	236	0.001	429
26	QQ50	191	0.000	0
26	QQ60	131	0.000	0
26	QQ70	77	0.000	0
26	QQ80	199	0.001	429
26	QQ90	201	0.004	2,832
26	RR10	172	0.000	172
26	RR20	310	0.108	69,732
	TOTAL	**2,919**	**0.121**	**78,313**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 1
AVERAGE DAILY DRY WEATHER FLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow (cfs)	Average Daily Dry Weather Flow (gpd)
27	WW100	108	0.000	0
27	WW110	259	0.002	1,005
27	WW120	111	0.001	503
27	WW130	214	0.002	1,508
27	WW140	161	0.001	503
27	WW150	165	0.004	2,513
27	WW155	72	0.001	503
27	WW160	65	0.003	2,010
27	WW170	113	0.004	2,513
27	WW180	242	0.016	10,051
27	WW410	250	0.001	503
27	WW420	249	0.005	3,518
27	WW430	254	0.001	503
27	WW440	502	0.001	503
27	WW450	264	0.019	12,564
27	WW460	35	0.001	503
27	WW470	135	0.001	503
27	WW480	214	0.007	4,523
27	WW80	157	0.000	0
27	WW90	92	0.001	503
27	YY10	205	0.085	54,996
	TOTAL	**3,867**	**0.154**	**99,725**
28	TT10	313	0.000	159
28	TT20	163	0.000	0
28	TT25	147	0.000	0
28	TT30	97	0.000	159
28	TT35	122	0.000	0
28	TT40	157	0.000	159
28	TT45	185	0.000	159
28	TT50	147	0.116	74,770
28	VV10	240	0.001	503
28	VV30	159	0.001	503
28	VV340	271	0.000	0
28	VV380	169	0.000	191
28	VV390	230	0.000	0

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 1
AVERAGE DAILY DRY WEATHER FLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow (cfs)	Average Daily Dry Weather Flow (gpd)
28	VV40	163	0.000	0
28	VV400	199	0.001	953
28	VV410	183	0.000	318
28	VV420	242	0.000	0
28	VV50	69	0.002	1,081
28	WW30	71	0.004	2,513
	TOTAL	**3,327**	**0.126**	**81,466**
29	WW20	156	0.003	2,010
	TOTAL	**156**	**0.003**	**2,010**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 2
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFILRATION
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Infiltration (cfs)	Average Daily Dry Weather Flow Plus Peak Infiltration (gpd)
1	AA60	220	0.043	28,021
1	AA50	223	0.014	9,340
1	AA40	241	0.072	46,702
1	AA30	86.16	0.012	7,472
	TOTAL	**770**	**0.142**	**91,536**
2	AA430	70	0.052	33,625
2	AA420	216	0.000	0
2	AA410	101	0.000	0
2	AA400	233	0.023	14,945
2	AA380	203	0.012	7,472
2	AA370	200	0.000	0
2	AA360	214	0.023	14,945
	TOTAL	**1,237**	**0.110**	**70,987**
3	AA20	140	0.023	14,945
3	AA10	245	0.014	9,340
	TOTAL	**385**	**0.038**	**24,285**
4	DD100	162	0.213	137,740
4	DD90	14	0.002	1,548
4	DD30	205	0.002	1,548
4	DD20	17	0.002	1,548
4	DD10	355	0.002	1,548
	TOTAL	**753**	**0.223**	**143,930**
5	EE16	25	0.208	134,422
5	EE11	200	0.005	3,095
5	EE10	222	0.002	1,548
	TOTAL	**447**	**0.215**	**139,065**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 2
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFILRATION
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Infiltration (cfs)	Average Daily Dry Weather Flow Plus Peak Infiltration (gpd)
6	CC140	220	0.109	70,596
6	CC130	219	0.000	0
6	CC120	157	0.006	3,716
6	CC110	156	0.002	1,548
6	CC20	16	0.007	4,643
	TOTAL	**768**	**0.125**	**80,502**
7	CC30	252	0.000	0
7	CC10	734	0.000	0
	TOTAL	**986**	**0.000**	**0**
8	HH70	222	0.187	121,008
8	HH60	247	0.000	0
8	HH40	236	0.000	0
	TOTAL	**705**	**0.187**	**121,008**
9	HH170	307	0.018	11,806
9	HH160	194	0.000	0
9	HH150	246	0.000	0
9	HH130	146	0.000	0
9	HH110	170	0.000	0
	TOTAL	**1,063**	**0.018**	**11,806**
10	HH30	262	0.000	0
10	HH20	123	0.000	0
	TOTAL	**385**	**0.000**	**0**
11	HH250	141	0.014	8,854
11	HH240	197	0.000	0
11	HH235	196	0.009	5,903
11	HH230	140	0.000	0
11	HH15	144	0.000	0
	TOTAL	**818**	**0.023**	**14,757**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 2
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFILRATION
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Infiltration (cfs)	Average Daily Dry Weather Flow Plus Peak Infiltration (gpd)
12	HH10	119	0.000	0
12	JJ1090	244	0.000	0
12	JJ1080	171	0.002	1,439
12	JJ1070	129	0.002	1,439
12	JJ1060	208	0.013	8,632
12	JJ1040	303	0.004	2,877
12	JJ1030	147	0.004	2,877
12	JJ1020	177	0.007	4,316
12	JJ950	251	0.022	14,386
12	JJ940	191	0.004	2,877
12	JJ930	199	0.002	1,439
12	JJ925	254	0.002	1,439
12	JJ920	81	0.002	1,439
	TOTAL	**2,474**	**0.067**	**43,159**
13	GG130	1072	0.178	115,314
13	GG100	312	0.000	0
13	GG90	313	0.000	0
13	GG80	305	0.000	0
13	GG70	281	0.027	17,297
13	GG50	288	0.000	0
13	GG40	212	0.000	0
13	GG30	83	0.000	0
13	GG20	109	0.018	11,531
13	GG10	175	0.002	1,439
	TOTAL	**3,150**	**0.225**	**145,581**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 2
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFILRATION
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Infiltration (cfs)	Average Daily Dry Weather Flow Plus Peak Infiltration (gpd)
14	JJ860	283	0.029	18,702
14	JJ850	337	0.004	2,877
14	JJ720	264	0.004	2,877
14	JJ712	458	0.004	2,877
14	JJ710	234	0.036	23,018
14	JJ704	90	0.004	2,877
14	JJ703	45	0.004	2,877
14	JJ702	97	0.004	2,877
14	JJ701	189	0.004	2,877
14	JJ700	240	0.004	2,877
14	JJ631	324	0.004	2,877
14	JJ630	53	0.022	14,386
	TOTAL	**2,614**	**0.127**	**82,003**
15	OO1090	205	0.492	318,047
15	OO1050	328	0.004	2,820
15	OO1040	257	0.057	36,658
15	OO930	15	0.004	2,820
	TOTAL	**805**	**0.558**	**360,345**
16	UU10	200	0.194	125,491
16	SS170	222	0.182	117,373
16	SS160	347	0.026	16,768
16	SS150	78	0.026	16,768
16	SS140	264	0.000	0
16	SS135	223	0.259	167,676
16	SS95	243	0.000	0
16	SS85	162	0.000	0
16	SS45	83	0.000	0
16	SS35	135	0.026	16,768
16	SS25	65	0.000	0
16	SS15	322	0.000	0
16	OO1065	227	0.004	2,820
16	OO1062	220	0.022	14,099
	TOTAL	**2,791**	**0.739**	**477,762**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 2
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFILRATION
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Infiltration (cfs)	Average Daily Dry Weather Flow Plus Peak Infiltration (gpd)
17	OO220	200	0.022	14,099
17	OO210	197	0.000	0
17	OO195	167	0.022	14,099
17	OO190	154	0.000	0
17	OO180	77	0.022	14,099
17	OO170	201	0.000	0
17	OO160	200	0.022	14,099
17	OO150	204	0.022	14,099
17	OO140	227	0.044	28,199
17	OO130	219	0.004	2,820
17	OO120	155	0.000	0
17	OO110	221	0.000	0
17	OO100	77	0.004	2,820
17	OO90	217	0.004	2,820
17	OO80	226	0.004	2,820
17	OO70	196	0.153	98,695
17	OO60	106	0.004	2,820
17	OO50	139	0.004	2,820
17	OO40	333	0.004	2,820
17	OO30	106	0.004	2,820
17	OO20	204	0.004	2,820
17	OO10	121	0.004	2,877
17	JJ670	170	0.002	1,439
17	JJ660	77	0.002	1,439
17	JJ650	160	0.002	1,439
17	JJ640	278	0.002	1,439
	TOTAL	**4,632**	**0.358**	**231,400**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 2
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFILRATION
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Infiltration (cfs)	Average Daily Dry Weather Flow Plus Peak Infiltration (gpd)
18	JJ620	235	0.004	2,877
18	JJ590	174	0.004	2,877
18	JJ580	295	0.004	2,877
18	JJ570	239	0.004	2,418
18	JJ490	217	0.243	157,161
18	JJ480	258	0.026	16,925
18	JJ470	248	0.000	0
18	JJ460	82	0.000	0
	TOTAL	**1,748**	**0.286**	**185,136**
19	FF20	41	0.142	91,827
19	FF10	206	0.007	4,836
	TOTAL	**247**	**0.150**	**96,662**
20	JJ370	268	0.019	12,089
20	JJ280	128	0.037	24,179
20	JJ270	288	0.000	0
20	JJ250	302	0.019	12,089
20	JJ230	346	0.000	0
20	JJ210	438	0.019	12,089
20	JJ200	288	0.000	0
20	JJ170	234	0.000	0
20	JJ130	230	0.000	0
20	JJ120	258	0.000	0
20	JJ10	185	0.006	3,999
	TOTAL	**2,965**	**0.100**	**64,446**
21	LL530	171	0.081	52,168
21	LL520	358	0.000	0
21	LL510	92	0.009	5,796
21	LL500	200	0.000	0
21	LL480	12	0.090	57,964
	TOTAL	**833**	**0.179**	**115,928**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 2
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFILRATION
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Infiltration (cfs)	Average Daily Dry Weather Flow Plus Peak Infiltration (gpd)
22	KK60	267	0.175	113,013
	TOTAL	**267**	**0.175**	**113,013**
23	KK180	274	0.088	56,906
	TOTAL	**274**	**0.088**	**56,906**
24	KK40	262	0.000	0
24	KK10	233	0.003	2,000
	TOTAL	**495**	**0.003**	**2,000**
25	MM160	50	0.242	156,254
25	MM150	104	0.000	0
25	MM120	166	0.002	1,000
25	MM40	53	0.005	2,999
25	MM30	269	0.002	1,000
25	MM20	30	0.002	1,000
25	MM10	244	0.002	1,000
	TOTAL	**916**	**0.253**	**163,252**
26	RR20	310	0.353	228,277
26	RR10	172	0.004	2,390
26	QQ120	264	0.098	63,343
26	QQ110	198	0.002	1,195
26	QQ100	200	0.002	1,195
26	QQ90	201	0.061	39,440
26	QQ80	199	0.009	5,976
26	QQ70	77	0.000	0
26	QQ60	131	0.000	0
26	QQ50	191	0.000	0
26	QQ40	236	0.009	5,976
26	QQ30	223	0.000	0
26	QQ20	146	0.000	0
26	QQ10	157	0.000	0
26	QQ09	214	0.000	0
	TOTAL	**2,919**	**0.538**	**347,792**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 2
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFILRATION
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Infiltration (cfs)	Average Daily Dry Weather Flow Plus Peak Infiltration (gpd)
27	YY10	205	0.313	202,599
27	WW480	214	0.031	20,218
27	WW470	135	0.003	2,246
27	WW460	35	0.003	2,246
27	WW450	264	0.087	56,160
27	WW440	502	0.003	2,246
27	WW430	254	0.003	2,246
27	WW420	249	0.024	15,725
27	WW410	250	0.003	2,246
27	WW180	242	0.070	44,928
27	WW170	113	0.017	11,232
27	WW160	65	0.014	8,986
27	WW155	72	0.003	2,246
27	WW150	165	0.017	11,232
27	WW140	161	0.003	2,246
27	WW130	214	0.010	6,739
27	WW120	111	0.003	2,246
27	WW110	259	0.007	4,493
27	WW100	108	0.000	0
27	WW90	92	0.003	2,246
27	WW80	157	0.000	0
	TOTAL	**3,867**	**0.623**	**402,529**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 2
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFILRATION
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Infiltration (cfs)	Average Daily Dry Weather Flow Plus Peak Infiltration (gpd)
28	TT50	147	0.530	342,835
28	TT45	185	0.010	6,375
28	TT40	157	0.010	6,375
28	TT35	122	0.000	0
28	TT30	97	0.010	6,375
28	TT25	147	0.000	0
28	TT20	163	0.000	0
28	TT10	313	0.010	6,375
28	VV420	242	0.000	0
28	VV410	183	0.020	12,751
28	VV400	199	0.059	38,253
28	VV390	230	0.000	0
28	VV380	169	0.012	7,651
28	VV340	271	0.000	0
28	VV50	69	0.067	43,353
28	VV40	163	0.000	0
28	VV30	159	0.003	2,246
28	VV10	240	0.003	2,246
28	WW30	71	0.017	11,232
	TOTAL	**3,327**	**0.752**	**486,070**
29	WW20	156	0.014	8,986
	TOTAL	**156**	**0.014**	**8,986**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 3
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Inflow (cfs)	Average Daily Dry Weather Flow Plus Peak Inflow (gpd)
1	AA60	220	0.017	11,223
1	AA50	223	0.006	3,741
1	AA40	241	0.029	18,704
1	AA30	86.16	0.005	2,993
	TOTAL	**770**	**0.057**	**36,661**
2	AA430	70	0.021	13,467
2	AA420	216	0.000	0
2	AA410	101	0.000	0
2	AA400	233	0.009	5,985
2	AA380	203	0.005	2,993
2	AA370	200	0.000	0
2	AA360	214	0.009	5,985
	TOTAL	**1,237**	**0.044**	**28,431**
3	AA20	140	0.009	5,985
3	AA10	245	0.006	3,741
	TOTAL	**385**	**0.015**	**9,726**
4	DD100	162	0.147	94,918
4	DD90	14	0.002	1,066
4	DD30	205	0.002	1,066
4	DD20	17	0.002	1,066
4	DD10	355	0.002	1,066
	TOTAL	**753**	**0.153**	**99,184**
5	EE16	25	0.622	402,140
5	EE11	200	0.003	2,133
5	EE10	222	0.002	1,066
	TOTAL	**447**	**0.627**	**405,339**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 3
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Inflow (cfs)	Average Daily Dry Weather Flow Plus Peak Inflow (gpd)
6	CC140	220	0.113	72,957
6	CC130	219	0.000	0
6	CC120	157	0.006	3,840
6	CC110	156	0.002	1,066
6	CC20	16	0.005	3,199
	TOTAL	**768**	**0.125**	**81,063**
7	CC30	252	0.000	0
7	CC10	734	0.000	0
	TOTAL	**986**	**0.000**	**0**
8	HH70	222	0.326	210,860
8	HH60	247	0.000	0
8	HH40	236	0.000	0
	TOTAL	**705**	**0.326**	**210,860**
9	HH170	307	0.032	20,572
9	HH160	194	0.000	0
9	HH150	246	0.000	0
9	HH130	146	0.000	0
9	HH110	170	0.000	0
	TOTAL	**1,063**	**0.032**	**20,572**
10	HH30	262	0.000	0
10	HH20	123	0.000	0
	TOTAL	**385**	**0.000**	**0**
11	HH250	141	0.024	15,429
11	HH240	197	0.000	0
11	HH235	196	0.016	10,286
11	HH230	140	0.000	0
11	HH15	144	0.000	0
	TOTAL	**818**	**0.040**	**25,715**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 3
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Inflow (cfs)	Average Daily Dry Weather Flow Plus Peak Inflow (gpd)
12	HH10	119	0.000	0
12	JJ1090	244	0.000	0
12	JJ1080	171	0.007	4,794
12	JJ1070	129	0.007	4,794
12	JJ1060	208	0.045	28,761
12	JJ1040	303	0.015	9,587
12	JJ1030	147	0.015	9,587
12	JJ1020	177	0.022	14,381
12	JJ950	251	0.074	47,935
12	JJ940	191	0.015	9,587
12	JJ930	199	0.007	4,794
12	JJ925	254	0.007	4,794
12	JJ920	81	0.007	4,794
	TOTAL	**2,474**	**0.223**	**143,806**
13	GG130	1072	0.196	126,796
13	GG100	312	0.000	0
13	GG90	313	0.000	0
13	GG80	305	0.000	0
13	GG70	281	0.029	19,019
13	GG50	288	0.000	0
13	GG40	212	0.000	0
13	GG30	83	0.000	0
13	GG20	109	0.020	12,680
13	GG10	175	0.007	4,794
	TOTAL	**3,150**	**0.253**	**163,289**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 3
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Inflow (cfs)	Average Daily Dry Weather Flow Plus Peak Inflow (gpd)
14	JJ860	283	0.096	62,316
14	JJ850	337	0.015	9,587
14	JJ720	264	0.015	9,587
14	JJ712	458	0.015	9,587
14	JJ710	234	0.119	76,697
14	JJ704	90	0.015	9,587
14	JJ703	45	0.015	9,587
14	JJ702	97	0.015	9,587
14	JJ701	189	0.015	9,587
14	JJ700	240	0.015	9,587
14	JJ631	324	0.015	9,587
14	JJ630	53	0.074	47,935
	TOTAL	**2,614**	**0.423**	**273,232**
15	OO1090	205	0.727	469,713
15	OO1050	328	0.003	2,143
15	OO1040	257	0.043	27,859
15	OO930	15	0.003	2,143
	TOTAL	**805**	**0.777**	**501,858**
16	UU10	200	0.493	318,509
16	SS170	222	0.404	261,226
16	SS160	347	0.058	37,318
16	SS150	78	0.058	37,318
16	SS140	264	0.000	0
16	SS135	223	0.577	373,181
16	SS95	243	0.000	0
16	SS85	162	0.000	0
16	SS45	83	0.000	0
16	SS35	135	0.058	37,318
16	SS25	65	0.000	0
16	SS15	322	0.000	0
16	OO1065	227	0.003	2,143
16	OO1062	220	0.017	10,715
	TOTAL	**2,791**	**1.668**	**1,077,728**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 3
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Inflow (cfs)	Average Daily Dry Weather Flow Plus Peak Inflow (gpd)
17	OO220	200	0.017	10,715
17	OO210	197	0.000	0
17	OO195	167	0.017	10,715
17	OO190	154	0.000	0
17	OO180	77	0.017	10,715
17	OO170	201	0.000	0
17	OO160	200	0.017	10,715
17	OO150	204	0.017	10,715
17	OO140	227	0.033	21,430
17	OO130	219	0.003	2,143
17	OO120	155	0.000	0
17	OO110	221	0.000	0
17	OO100	77	0.003	2,143
17	OO90	217	0.003	2,143
17	OO80	226	0.003	2,143
17	OO70	196	0.116	75,005
17	OO60	106	0.003	2,143
17	OO50	139	0.003	2,143
17	OO40	333	0.003	2,143
17	OO30	106	0.003	2,143
17	OO20	204	0.003	2,143
17	OO10	121	0.015	9,587
17	JJ670	170	0.007	4,794
17	JJ660	77	0.007	4,794
17	JJ650	160	0.007	4,794
17	JJ640	278	0.007	4,794
	TOTAL	**4,632**	**0.306**	**198,058**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 3
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Inflow (cfs)	Average Daily Dry Weather Flow Plus Peak Inflow (gpd)
18	JJ620	235	0.015	9,587
18	JJ590	174	0.015	9,587
18	JJ580	295	0.015	9,587
18	JJ570	239	0.011	6,971
18	JJ490	217	0.701	453,107
18	JJ480	258	0.076	48,796
18	JJ470	248	0.000	0
18	JJ460	82	0.000	0
	TOTAL	**1,748**	**0.832**	**537,635**
19	FF20	41	0.294	190,236
19	FF10	206	0.022	13,942
	TOTAL	**247**	**0.316**	**204,177**
20	JJ370	268	0.054	34,854
20	JJ280	128	0.108	69,709
20	JJ270	288	0.000	0
20	JJ250	302	0.054	34,854
20	JJ230	346	0.000	0
20	JJ210	438	0.054	34,854
20	JJ200	288	0.000	0
20	JJ170	234	0.000	0
20	JJ130	230	0.000	0
20	JJ120	258	0.000	0
20	JJ10	185	0.006	3,999
	TOTAL	**2,965**	**0.276**	**178,271**
21	LL530	171	0.149	96,001
21	LL520	358	0.000	0
21	LL510	92	0.017	10,667
21	LL500	200	0.000	0
21	LL480	12	0.165	106,668
	TOTAL	**833**	**0.330**	**213,337**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 3
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Inflow (cfs)	Average Daily Dry Weather Flow Plus Peak Inflow (gpd)
22	KK60	267	0.784	506,618
	TOTAL	**267**	**0.784**	**506,618**
23	KK180	274	0.501	323,667
	TOTAL	**274**	**0.501**	**323,667**
24	KK40	262	0.000	0
24	KK10	233	0.003	2,000
	TOTAL	**495**	**0.003**	**2,000**
25	MM160	50	0.625	403,601
25	MM150	104	0.000	0
25	MM120	166	0.002	1,000
25	MM40	53	0.005	2,999
25	MM30	269	0.002	1,000
25	MM20	30	0.002	1,000
25	MM10	244	0.002	1,000
	TOTAL	**916**	**0.635**	**410,599**
26	RR20	310	0.755	487,850
26	RR10	172	0.011	7,196
26	QQ120	264	0.295	190,699
26	QQ110	198	0.006	3,598
26	QQ100	200	0.006	3,598
26	QQ90	201	0.184	118,737
26	QQ80	199	0.028	17,991
26	QQ70	77	0.000	0
26	QQ60	131	0.000	0
26	QQ50	191	0.000	0
26	QQ40	236	0.028	17,991
26	QQ30	223	0.000	0
26	QQ20	146	0.000	0
26	QQ10	157	0.000	0
26	QQ09	214	0.000	0
	TOTAL	**2,919**	**1.312**	**847,660**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 3
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Inflow (cfs)	Average Daily Dry Weather Flow Plus Peak Inflow (gpd)
27	YY10	205	0.572	369,693
27	WW480	214	0.107	68,981
27	WW470	135	0.012	7,665
27	WW460	35	0.012	7,665
27	WW450	264	0.296	191,615
27	WW440	502	0.012	7,665
27	WW430	254	0.012	7,665
27	WW420	249	0.083	53,652
27	WW410	250	0.012	7,665
27	WW180	242	0.237	153,292
27	WW170	113	0.059	38,323
27	WW160	65	0.047	30,658
27	WW155	72	0.012	7,665
27	WW150	165	0.059	38,323
27	WW140	161	0.012	7,665
27	WW130	214	0.036	22,994
27	WW120	111	0.012	7,665
27	WW110	259	0.024	15,329
27	WW100	108	0.000	0
27	WW90	92	0.012	7,665
27	WW80	157	0.000	0
	TOTAL	**3,867**	**1.628**	**1,051,843**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 3
AVERAGE DAILY DRY WEATHER FLOW PLUS PEAK INFLOW
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Average Daily Dry Weather Flow Plus Peak Inflow (cfs)	Average Daily Dry Weather Flow Plus Peak Inflow (gpd)
28	TT50	147	1.164	752,439
28	TT45	185	0.008	4,978
28	TT40	157	0.008	4,978
28	TT35	122	0.000	0
28	TT30	97	0.008	4,978
28	TT25	147	0.000	0
28	TT20	163	0.000	0
28	TT10	313	0.008	4,978
28	VV420	242	0.000	0
28	VV410	183	0.015	9,955
28	VV400	199	0.046	29,866
28	VV390	230	0.000	0
28	VV380	169	0.009	5,973
28	VV340	271	0.000	0
28	VV50	69	0.052	33,848
28	VV40	163	0.000	0
28	VV30	159	0.012	7,665
28	VV10	240	0.012	7,665
28	WW30	71	0.059	38,323
	TOTAL	**3,327**	**1.401**	**905,645**
29	WW20	156	0.047	30,658
	TOTAL	**156**	**0.047**	**30,658**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 4
PEAK AVERAGE DAILY FLOW PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (cfs)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (gpd)
1	AA60	220	0.019	12,213
1	AA50	223	0.006	4,071
1	AA40	241	0.031	20,355
1	AA30	86.16	0.005	3,257
	TOTAL	**770**	**0.062**	**39,897**
2	AA430	70	0.023	14,656
2	AA420	216	0.000	0
2	AA410	101	0.000	0
2	AA400	233	0.010	6,514
2	AA380	203	0.005	3,257
2	AA370	200	0.000	0
2	AA360	214	0.010	6,514
	TOTAL	**1,237**	**0.048**	**30,940**
3	AA20	140	0.010	6,514
3	AA10	245	0.006	4,071
	TOTAL	**385**	**0.016**	**10,585**
4	DD100	162	0.339	219,271
4	DD90	14	0.004	2,464
4	DD30	205	0.004	2,464
4	DD20	17	0.004	2,464
4	DD10	355	0.004	2,464
	TOTAL	**753**	**0.355**	**229,126**
5	EE16	25	0.885	572,141
5	EE11	200	0.008	4,927
5	EE10	222	0.004	2,464
	TOTAL	**447**	**0.897**	**579,532**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 4
PEAK AVERAGE DAILY FLOW PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (cfs)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (gpd)
6	CC140	220	0.213	137,942
6	CC130	219	0.000	0
6	CC120	157	0.011	7,260
6	CC110	156	0.004	2,464
6	CC20	16	0.011	7,391
	TOTAL	**768**	**0.240**	**155,057**
7	CC30	252	0.000	0
7	CC10	734	0.000	0
	TOTAL	**986**	**0.000**	**0**
8	HH70	222	0.420	271,559
8	HH60	247	0.000	0
8	HH40	236	0.000	0
	TOTAL	**705**	**0.420**	**271,559**
9	HH170	307	0.041	26,494
9	HH160	194	0.000	0
9	HH150	246	0.000	0
9	HH130	146	0.000	0
9	HH110	170	0.000	0
	TOTAL	**1,063**	**0.041**	**26,494**
10	HH30	262	0.000	0
10	HH20	123	0.000	0
	TOTAL	**385**	**0.000**	**0**
11	HH250	141	0.031	19,870
11	HH240	197	0.000	0
11	HH235	196	0.020	13,247
11	HH230	140	0.000	0
11	HH15	144	0.000	0
	TOTAL	**818**	**0.051**	**33,117**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 4
PEAK AVERAGE DAILY FLOW PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (cfs)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (gpd)
12	HH10	119	0.000	0
12	JJ1090	244	0.000	0
12	JJ1080	171	0.013	8,119
12	JJ1070	129	0.013	8,119
12	JJ1060	208	0.075	48,715
12	JJ1040	303	0.025	16,238
12	JJ1030	147	0.025	16,238
12	JJ1020	177	0.038	24,357
12	JJ950	251	0.126	81,192
12	JJ940	191	0.025	16,238
12	JJ930	199	0.013	8,119
12	JJ925	254	0.013	8,119
12	JJ920	81	0.013	8,119
	TOTAL	**2,474**	**0.377**	**243,575**
13	GG130	1072	0.183	118,304
13	GG100	312	0.000	0
13	GG90	313	0.000	0
13	GG80	305	0.000	0
13	GG70	281	0.027	17,746
13	GG50	288	0.000	0
13	GG40	212	0.000	0
13	GG30	83	0.000	0
13	GG20	109	0.018	11,830
13	GG10	175	0.013	8,119
	TOTAL	**3,150**	**0.241**	**155,999**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 4
PEAK AVERAGE DAILY FLOW PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (cfs)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (gpd)
14	JJ860	283	0.163	105,549
14	JJ850	337	0.025	16,238
14	JJ720	264	0.025	16,238
14	JJ712	458	0.025	16,238
14	JJ710	234	0.201	129,907
14	JJ704	90	0.025	16,238
14	JJ703	45	0.025	16,238
14	JJ702	97	0.025	16,238
14	JJ701	189	0.025	16,238
14	JJ700	240	0.025	16,238
14	JJ631	324	0.025	16,238
14	JJ630	53	0.126	81,192
	TOTAL	**2,614**	**0.716**	**462,792**
15	OO1090	205	1.119	723,314
15	OO1050	328	0.010	6,761
15	OO1040	257	0.136	87,896
15	OO930	15	0.010	6,761
	TOTAL	**805**	**1.276**	**824,733**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 4
PEAK AVERAGE DAILY FLOW PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (cfs)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (gpd)
16	UU10	200	0.758	490,105
16	SS170	222	0.535	345,725
16	SS160	347	0.076	49,389
16	SS150	78	0.076	49,389
16	SS140	264	0.000	0
16	SS135	223	0.764	493,893
16	SS95	243	0.000	0
16	SS85	162	0.000	0
16	SS45	83	0.000	0
16	SS35	135	0.076	49,389
16	SS25	65	0.000	0
16	SS15	322	0.000	0
16	OO1065	227	0.010	6,761
16	OO1062	220	0.052	33,806
	TOTAL	**2,791**	**2.350**	**1,518,459**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 4
PEAK AVERAGE DAILY FLOW PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (cfs)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (gpd)
17	OO220	200	0.052	33,806
17	OO210	197	0.000	0
17	OO195	167	0.052	33,806
17	OO190	154	0.000	0
17	OO180	77	0.052	33,806
17	OO170	201	0.000	0
17	OO160	200	0.052	33,806
17	OO150	204	0.052	33,806
17	OO140	227	0.105	67,612
17	OO130	219	0.010	6,761
17	OO120	155	0.000	0
17	OO110	221	0.000	0
17	OO100	77	0.010	6,761
17	OO90	217	0.010	6,761
17	OO80	226	0.010	6,761
17	OO70	196	0.366	236,643
17	OO60	106	0.010	6,761
17	OO50	139	0.010	6,761
17	OO40	333	0.010	6,761
17	OO30	106	0.010	6,761
17	OO20	204	0.010	6,761
17	OO10	121	0.025	16,238
17	JJ670	170	0.013	8,119
17	JJ660	77	0.013	8,119
17	JJ650	160	0.013	8,119
17	JJ640	278	0.013	8,119
	TOTAL	**4,632**	**0.902**	**582,852**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 4
PEAK AVERAGE DAILY FLOW PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (cfs)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (gpd)
18	JJ620	235	0.025	16,238
18	JJ590	174	0.025	16,238
18	JJ580	295	0.025	16,238
18	JJ570	239	0.018	11,425
18	JJ490	217	1.149	742,654
18	JJ480	258	0.124	79,978
18	JJ470	248	0.000	0
18	JJ460	82	0.000	0
	TOTAL	**1,748**	**1.366**	**882,773**
19	FF20	41	0.413	266,694
19	FF10	206	0.035	22,851
	TOTAL	**247**	**0.448**	**289,545**
20	JJ370	268	0.088	57,127
20	JJ280	128	0.177	114,255
20	JJ270	288	0.000	0
20	JJ250	302	0.088	57,127
20	JJ230	346	0.000	0
20	JJ210	438	0.088	57,127
20	JJ200	288	0.000	0
20	JJ170	234	0.000	0
20	JJ130	230	0.000	0
20	JJ120	258	0.000	0
20	JJ10	185	0.006	3,999
	TOTAL	**2,965**	**0.448**	**289,635**
21	LL530	171	0.176	113,599
21	LL520	358	0.000	0
21	LL510	92	0.020	12,622
21	LL500	200	0.000	0
21	LL480	12	0.195	126,222
	TOTAL	**833**	**0.391**	**252,443**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 4
PEAK AVERAGE DAILY FLOW PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (cfs)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (gpd)
22	KK60	267	1.216	785,897
	TOTAL	**267**	**1.216**	**785,897**
23	KK180	274	0.937	605,322
	TOTAL	**274**	**0.937**	**605,322**
24	KK40	262	0.000	0
24	KK10	233	0.003	2,000
	TOTAL	**495**	**0.003**	**2,000**
25	MM160	50	0.838	541,719
25	MM150	104	0.000	0
25	MM120	166	0.002	1,000
25	MM40	53	0.005	2,999
25	MM30	269	0.002	1,000
25	MM20	30	0.002	1,000
25	MM10	244	0.002	1,000
	TOTAL	**916**	**0.849**	**548,717**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 4
PEAK AVERAGE DAILY FLOW PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (cfs)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (gpd)
26	RR20	310	1.210	781,822
26	RR10	172	0.014	9,187
26	QQ120	264	0.377	243,450
26	QQ110	198	0.007	4,593
26	QQ100	200	0.007	4,593
26	QQ90	201	0.235	151,582
26	QQ80	199	0.036	22,967
26	QQ70	77	0.000	0
26	QQ60	131	0.000	0
26	QQ50	191	0.000	0
26	QQ40	236	0.036	22,967
26	QQ30	223	0.000	0
26	QQ20	146	0.000	0
26	QQ10	157	0.000	0
26	QQ09	214	0.000	0
	TOTAL	**2,919**	**1.920**	**1,241,163**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 4
PEAK AVERAGE DAILY FLOW PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (cfs)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (gpd)
27	YY10	205	0.942	608,536
27	WW480	214	0.158	102,377
27	WW470	135	0.018	11,375
27	WW460	35	0.018	11,375
27	WW450	264	0.440	284,380
27	WW440	502	0.018	11,375
27	WW430	254	0.018	11,375
27	WW420	249	0.123	79,626
27	WW410	250	0.018	11,375
27	WW180	242	0.352	227,504
27	WW170	113	0.088	56,876
27	WW160	65	0.070	45,501
27	WW155	72	0.018	11,375
27	WW150	165	0.088	56,876
27	WW140	161	0.018	11,375
27	WW130	214	0.053	34,126
27	WW120	111	0.018	11,375
27	WW110	259	0.035	22,750
27	WW100	108	0.000	0
27	WW90	92	0.018	11,375
27	WW80	157	0.000	0
	TOTAL	**3,867**	**2.508**	**1,620,929**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 4
PEAK AVERAGE DAILY FLOW PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (cfs)	Peak Average Daily Flow Plus Peak Inflow for 5Yr/24Hr Storm (gpd)
28	TT50	147	1.387	896,093
28	TT45	185	0.008	5,206
28	TT40	157	0.008	5,206
28	TT35	122	0.000	0
28	TT30	97	0.008	5,206
28	TT25	147	0.000	0
28	TT20	163	0.000	0
28	TT10	313	0.008	5,206
28	VV420	242	0.000	0
28	VV410	183	0.016	10,412
28	VV400	199	0.048	31,235
28	VV390	230	0.000	0
28	VV380	169	0.010	6,247
28	VV340	271	0.000	0
28	VV50	69	0.055	35,399
28	VV40	163	0.000	0
28	VV30	159	0.018	11,375
28	VV10	240	0.018	11,375
28	WW30	71	0.088	56,876
	TOTAL	**3,327**	**1.671**	**1,079,835**
29	WW20	156	0.070	45,501
	TOTAL	**156**	**0.070**	**45,501**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 5
PEAK WASTEWATER FLOW PLUS PEAK INFILTRATION PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (cfs)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (gpd)
1	AA60	220	0.112	72,495
1	AA50	223	0.037	24,165
1	AA40	241	0.187	120,825
1	AA30	86.16	0.030	19,332
	TOTAL	**770**	**0.366**	**236,818**
2	AA430	70	0.135	86,994
2	AA420	216	0.000	0
2	AA410	101	0.000	0
2	AA400	233	0.060	38,664
2	AA380	203	0.030	19,332
2	AA370	200	0.000	0
2	AA360	214	0.060	38,664
	TOTAL	**1,237**	**0.284**	**183,654**
3	AA20	140	0.060	38,664
3	AA10	245	0.037	24,165
	TOTAL	**385**	**0.097**	**62,829**
4	DD100	162	0.736	475,668
4	DD90	14	0.008	5,345
4	DD30	205	0.008	5,345
4	DD20	17	0.008	5,345
4	DD10	355	0.008	5,345
	TOTAL	**753**	**0.769**	**497,046**
5	EE16	25	1.341	866,330
5	EE11	200	0.017	10,689
5	EE10	222	0.008	5,345
	TOTAL	**447**	**1.365**	**882,363**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 5
PEAK WASTEWATER FLOW PLUS PEAK INFILTRATION PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (cfs)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (gpd)
6	CC140	220	0.585	378,066
6	CC130	219	0.000	0
6	CC120	157	0.031	19,898
6	CC110	156	0.008	5,345
6	CC20	16	0.025	16,034
	TOTAL	**768**	**0.649**	**419,342**
7	CC30	252	0.000	0
7	CC10	734	0.000	0
	TOTAL	**986**	**0.000**	**0**
8	HH70	222	0.934	603,498
8	HH60	247	0.000	0
8	HH40	236	0.000	0
	TOTAL	**705**	**0.934**	**603,498**
9	HH170	307	0.091	58,878
9	HH160	194	0.000	0
9	HH150	246	0.000	0
9	HH130	146	0.000	0
9	HH110	170	0.000	0
	TOTAL	**1,063**	**0.091**	**58,878**
10	HH30	262	0.000	0
10	HH20	123	0.000	0
	TOTAL	**385**	**0.000**	**0**
11	HH250	141	0.068	44,158
11	HH240	197	0.000	0
11	HH235	196	0.046	29,439
11	HH230	140	0.000	0
11	HH15	144	0.000	0
	TOTAL	**818**	**0.114**	**73,597**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 5
PEAK WASTEWATER FLOW PLUS PEAK INFILTRATION PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (cfs)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (gpd)
12	HH10	119	0.000	0
12	JJ1090	244	0.000	0
12	JJ1080	171	0.018	11,395
12	JJ1070	129	0.018	11,395
12	JJ1060	208	0.106	68,370
12	JJ1040	303	0.035	22,790
12	JJ1030	147	0.035	22,790
12	JJ1020	177	0.053	34,185
12	JJ950	251	0.176	113,949
12	JJ940	191	0.035	22,790
12	JJ930	199	0.018	11,395
12	JJ925	254	0.018	11,395
12	JJ920	81	0.018	11,395
	TOTAL	**2,474**	**0.529**	**341,848**
13	GG130	1072	0.618	399,087
13	GG100	312	0.000	0
13	GG90	313	0.000	0
13	GG80	305	0.000	0
13	GG70	281	0.093	59,863
13	GG50	288	0.000	0
13	GG40	212	0.000	0
13	GG30	83	0.000	0
13	GG20	109	0.062	39,909
13	GG10	175	0.018	11,395
	TOTAL	**3,150**	**0.790**	**510,254**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 5
PEAK WASTEWATER FLOW PLUS PEAK INFILTRATION PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (cfs)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (gpd)
14	JJ860	283	0.229	148,134
14	JJ850	337	0.035	22,790
14	JJ720	264	0.035	22,790
14	JJ712	458	0.035	22,790
14	JJ710	234	0.282	182,319
14	JJ704	90	0.035	22,790
14	JJ703	45	0.035	22,790
14	JJ702	97	0.035	22,790
14	JJ701	189	0.035	22,790
14	JJ700	240	0.035	22,790
14	JJ631	324	0.035	22,790
14	JJ630	53	0.176	113,949
	TOTAL	**2,614**	**1.005**	**649,511**
15	OO1090	205	2.725	1,760,787
15	OO1050	328	0.016	10,502
15	OO1040	257	0.211	136,526
15	OO930	15	0.016	10,502
	TOTAL	**805**	**2.968**	**1,918,317**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 5
PEAK WASTEWATER FLOW PLUS PEAK INFILTRATION PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (cfs)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (gpd)
16	UU10	200	1.260	814,506
16	SS170	222	0.867	559,997
16	SS160	347	0.124	80,000
16	SS150	78	0.124	80,000
16	SS140	264	0.000	0
16	SS135	223	1.238	799,996
16	SS95	243	0.000	0
16	SS85	162	0.000	0
16	SS45	83	0.000	0
16	SS35	135	0.124	80,000
16	SS25	65	0.000	0
16	SS15	322	0.000	0
16	OO1065	227	0.016	10,502
16	OO1062	220	0.081	52,510
	TOTAL	**2,791**	**3.834**	**2,477,510**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 5
PEAK WASTEWATER FLOW PLUS PEAK INFILTRATION PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (cfs)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (gpd)
17	OO220	200	0.081	52,510
17	OO210	197	0.000	0
17	OO195	167	0.081	52,510
17	OO190	154	0.000	0
17	OO180	77	0.081	52,510
17	OO170	201	0.000	0
17	OO160	200	0.081	52,510
17	OO150	204	0.081	52,510
17	OO140	227	0.163	105,020
17	OO130	219	0.016	10,502
17	OO120	155	0.000	0
17	OO110	221	0.000	0
17	OO100	77	0.016	10,502
17	OO90	217	0.016	10,502
17	OO80	226	0.016	10,502
17	OO70	196	0.569	367,570
17	OO60	106	0.016	10,502
17	OO50	139	0.016	10,502
17	OO40	333	0.016	10,502
17	OO30	106	0.016	10,502
17	OO20	204	0.016	10,502
17	OO10	121	0.035	22,790
17	JJ670	170	0.018	11,395
17	JJ660	77	0.018	11,395
17	JJ650	160	0.018	11,395
17	JJ640	278	0.018	11,395
	TOTAL	**4,632**	**1.390**	**898,028**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 5
PEAK WASTEWATER FLOW PLUS PEAK INFILTRATION PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (cfs)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (gpd)
18	JJ620	235	0.035	22,790
18	JJ590	174	0.035	22,790
18	JJ580	295	0.035	22,790
18	JJ570	239	0.027	17,649
18	JJ490	217	1.775	1,147,215
18	JJ480	258	0.191	123,546
18	JJ470	248	0.000	0
18	JJ460	82	0.000	0
	TOTAL	**1,748**	**2.099**	**1,356,780**
19	FF20	41	0.806	521,004
19	FF10	206	0.055	35,299
	TOTAL	**247**	**0.861**	**556,303**
20	JJ370	268	0.137	88,247
20	JJ280	128	0.273	176,495
20	JJ270	288	0.000	0
20	JJ250	302	0.137	88,247
20	JJ230	346	0.000	0
20	JJ210	438	0.137	88,247
20	JJ200	288	0.000	0
20	JJ170	234	0.000	0
20	JJ130	230	0.000	0
20	JJ120	258	0.000	0
20	JJ10	185	0.043	27,994
	TOTAL	**2,965**	**0.726**	**469,230**
21	LL530	171	0.406	262,214
21	LL520	358	0.000	0
21	LL510	92	0.045	29,135
21	LL500	200	0.000	0
21	LL480	12	0.451	291,348
	TOTAL	**833**	**0.902**	**582,697**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 5
PEAK WASTEWATER FLOW PLUS PEAK INFILTRATION PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (cfs)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (gpd)
22	KK60	267	1.549	1,000,976
	TOTAL	**267**	**1.549**	**1,000,976**
23	KK180	274	1.101	711,424
	TOTAL	**274**	**1.101**	**711,424**
24	KK40	262	0.000	0
24	KK10	233	0.022	13,997
	TOTAL	**495**	**0.022**	**13,997**
25	MM160	50	1.252	809,208
25	MM150	104	0.000	0
25	MM120	166	0.011	6,998
25	MM40	53	0.032	20,995
25	MM30	269	0.011	6,998
25	MM20	30	0.011	6,998
25	MM10	244	0.011	6,998
	TOTAL	**916**	**1.328**	**858,197**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 5
PEAK WASTEWATER FLOW PLUS PEAK INFILTRATION PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (cfs)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (gpd)
26	RR20	310	1.995	1,289,028
26	RR10	172	0.019	12,435
26	QQ120	264	0.510	329,532
26	QQ110	198	0.010	6,218
26	QQ100	200	0.010	6,218
26	QQ90	201	0.317	205,180
26	QQ80	199	0.048	31,088
26	QQ70	77	0.000	0
26	QQ60	131	0.000	0
26	QQ50	191	0.000	0
26	QQ40	236	0.048	31,088
26	QQ30	223	0.000	0
26	QQ20	146	0.000	0
26	QQ10	157	0.000	0
26	QQ09	214	0.000	0
	TOTAL	**2,919**	**2.957**	**1,910,786**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 5
PEAK WASTEWATER FLOW PLUS PEAK INFILTRATION PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (cfs)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (gpd)
27	YY10	205	1.595	1,031,119
27	WW480	214	0.219	141,592
27	WW470	135	0.024	15,732
27	WW460	35	0.024	15,732
27	WW450	264	0.609	393,310
27	WW440	502	0.024	15,732
27	WW430	254	0.024	15,732
27	WW420	249	0.170	110,127
27	WW410	250	0.024	15,732
27	WW180	242	0.487	314,648
27	WW170	113	0.122	78,662
27	WW160	65	0.097	62,930
27	WW155	72	0.024	15,732
27	WW150	165	0.122	78,662
27	WW140	161	0.024	15,732
27	WW130	214	0.073	47,197
27	WW120	111	0.024	15,732
27	WW110	259	0.049	31,465
27	WW100	108	0.000	0
27	WW90	92	0.024	15,732
27	WW80	157	0.000	0
	TOTAL	**3,867**	**3.762**	**2,431,304**

TOWN OF DEDHAM, MASSACHUSETTS
MODEL SCENARIO 5
PEAK WASTEWATER FLOW PLUS PEAK INFILTRATION PLUS PEAK INFLOW FOR 5YR/24HR STORM
ALL MODEL AREAS

Model Area	Upstream Node	Length (ft)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (cfs)	Peak WW Flow Plus Peak Infiltration Plus Peak Inflow for 5Yr / 24Hr Storm (gpd)
28	TT50	147	2.357	1,523,053
28	TT45	185	0.019	12,376
28	TT40	157	0.019	12,376
28	TT35	122	0.000	0
28	TT30	97	0.019	12,376
28	TT25	147	0.000	0
28	TT20	163	0.000	0
28	TT10	313	0.019	12,376
28	VV420	242	0.000	0
28	VV410	183	0.038	24,752
28	VV400	199	0.115	74,255
28	VV390	230	0.000	0
28	VV380	169	0.023	14,851
28	VV340	271	0.000	0
28	VV50	69	0.130	84,155
28	VV40	163	0.000	0
28	VV30	159	0.024	15,732
28	VV10	240	0.024	15,732
28	WW30	71	0.122	78,662
	TOTAL	**3,327**	**2.910**	**1,880,695**
29	WW20	156	0.097	62,930
	TOTAL	**156**	**0.097**	**62,930**