

Appendix J

Sewer Study





Technical Memorandum

January 7, 2021

To: Keith Linker, City of Anaheim

Ref. No.: 11140066-TO08

From: Ulysses Fandino, GHD

Tel: 949-585-5203

cc: Aram Eftekhari, City of Anaheim

Subject: The Connelly Project (OTH2020-01322) Sewer Analysis

1. Background

The City of Anaheim (City) has retained GHD to perform a sewer analysis on the City's sewer collection system to determine the effects of a proposed residential development located at 2323 West Broadway within the West Anaheim Master Plan of Sanitary Sewer (WAMPSS) study area. The development, herein referred to as the Connelly Project, consists of the redevelopment of the Cornelia Connelly School into low-medium density residential townhomes. A sewer hydraulic analysis was conducted to quantify the effects of the development to the downstream sanitary sewer reaches.

2. Methodology

The sewer hydraulic analysis utilized the current iteration of the sewer hydraulic model prepared for the 2015 WAMPSS update. The WAMPSS sewer model includes all sewer improvements the City has constructed since the previous 2005 Combined West Anaheim Area Master Plan of Sanitary Sewers. Sewer loadings to the model have been calibrated to flow monitoring data to reflect the current sewer flow conditions. Sewer pipe alignments, elevations, connections, and manholes for the project area were verified during the WAMPSS update.

The anticipated sewer generation changes are inputted into the hydraulic model for analysis. The following sections describe the study area for this sewer analysis, the proposed land use change, the methodology for preparing the sewer hydraulic model, and the revised sewer loadings from the proposed development.

2.1 Study Area

The Connelly Project will be constructed at the current site currently occupied by the Cornelia Connelly School. The 6.5-acre lot (APN 12705143) is located on the north side of Broadway and east of Gilbert Street at 2323 West Broadway. The development will consist of 112 low-medium density residential townhomes, a recreation building, and a swimming pool.

According to the preliminary utility plan provided by the developer (see **Attachment**), the Connelly Project will have one connection to the City's sewer collection system, located between Manhole SW033129 and Manhole SW033128 on an 8-inch sewer main on the north side of West Broadway. The 8-inch main converges with a 21-inch sewer main on the south side of West Broadway at Manhole SW033226 approximately 120 feet west of the development. The sewer main continues westerly after the confluence to Gilbert Street, then southerly via two parallel sewer mains (15-inch and 18-inch, respectively) to Orange Avenue, and westerly via two 18-inch sewer mains until reaching the Orange County Sanitation District (OCSd) trunk sewer outfall at the intersection of Orange Avenue and Magnolia Avenue. The Connelly Project and the nearby sewer network are presented in **Figure 2.1**.

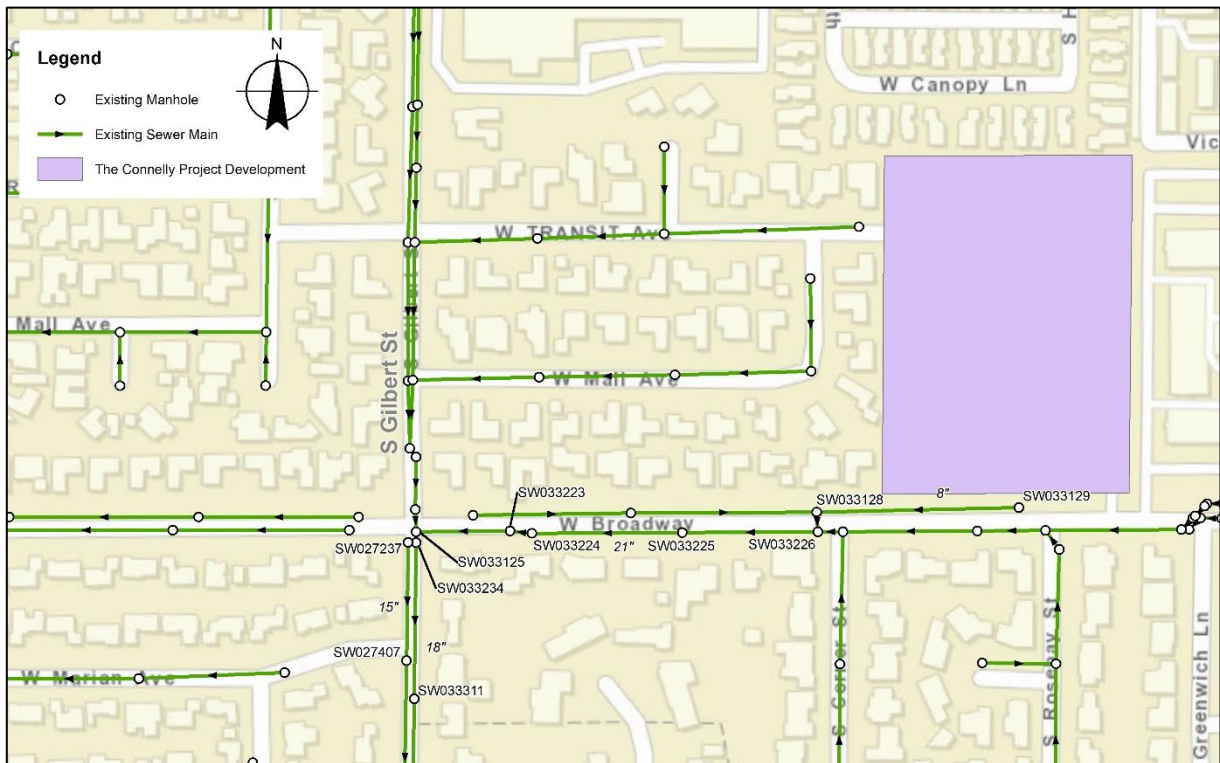


Figure 2.1 Study Area

2.2 Sewer Model Methodology

The sewer hydraulic model prepared for the WAMPSS was used as a basis for this sewer study. The model was developed using the Innovyze H₂OMAP Sewer hydraulic modeling software. Average sewage flows were calculated based on the land use and census data provided by the City, and unit flow factors were developed for the WAMPSS according to flow monitoring data and past sewer master plan studies. These flows were then allocated to the nearest manholes within the model. Peak flows were determined by applying diurnal curves according to land uses, as described in the next section.

The ratio of flow depth to pipe diameter at the actual peak flow is designated d/D . This d/D was calculated by the modeling program and was used to identify pipes needing improvement. The City's analysis criteria



call for a maximum allowable $d/D = 0.67$ for pipes with diameters less than 12 inches, and $d/D = 0.75$ for pipes with diameters equal to or greater than 12 inches. Thus, pipes with d/D ratios equal to or greater than these values were identified as needing improvement.

The City also have separate criteria for new sewer design that are more stringent than the analysis criteria specified above. These criteria call for a maximum allowable $d/D = 0.50$ for pipes with diameters less than 12 inches, and a $d/D = 0.60$ for pipes with diameters equal to or greater than 12 inches.

2.3 Peak Flow Methodology

The methodology for peak sewer flow modeling within the study area is based on diurnal curves, which uses a 24-hour flow generation curve to represent the pattern of sewage flows generated by type of land use. The residential and non-residential diurnal curves from the WAMPSS update were applied to the model. The diurnal curves are shown in **Figure 2.2** and **Figure 2.3**. The x-axis represents a 24-hour period starting and ending at midnight, while the y-axis represents the peaking factor applied to the normal flow factor at each hour of the day.

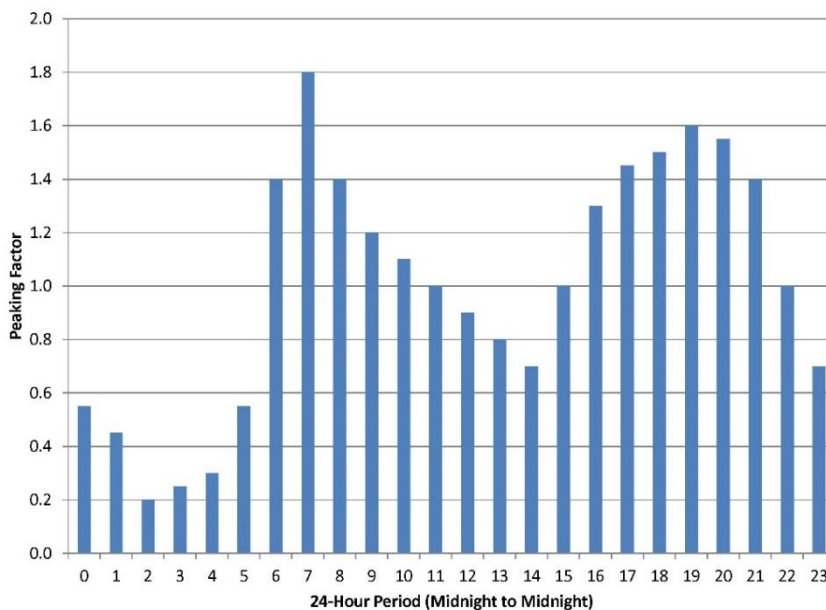


Figure 2.2 Residential Diurnal Curve

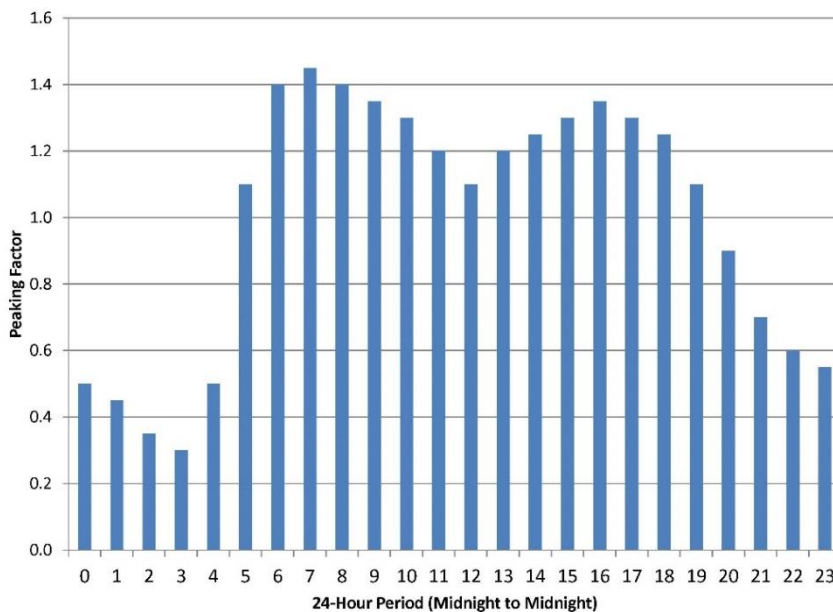


Figure 2.3 Non-Residential Diurnal Curve

2.4 Sewer Loadings for Study Area

The proposed land uses, along with the calibrated and adjusted unit flow factors from the WAMPSS update, determined the sewage flows generated from the proposed developments of the Connelly Project. For the purpose of this analysis, the sewer loading from proposed residences is loaded to the nearest existing manhole, Manhole SW033129. The estimated sewer loading is listed in **Table 2.1** below.

Table 2.1 Estimated Sewer Loading for The Connelly Project

Land Use Type	Dwelling Unit Count	Sewer Unit Flow Factor	Sewer Loading	Loading Manhole
Low-Medium Residential	112 DU	215 gpd/DU	24,080 gpd (16.7 gpm)	SW033129

DU = Dwelling unit

gpd = gallons per day

gpm = gallons per minute



3. Hydraulic Model Analysis

To determine the effects of altering land uses within the study area as proposed by the developer, two (2) model scenarios were analyzed:

- WAMPSS Existing Condition plus The Connelly Project
- WAMPSS Build-Out Condition plus The Connelly Project

For simplicity, the model results focus on the pipes downstream of The Connelly Project sewer connection point only. The model results are reported by Pipe ID, which is comprised of each pipe's upstream and downstream manhole identification number.

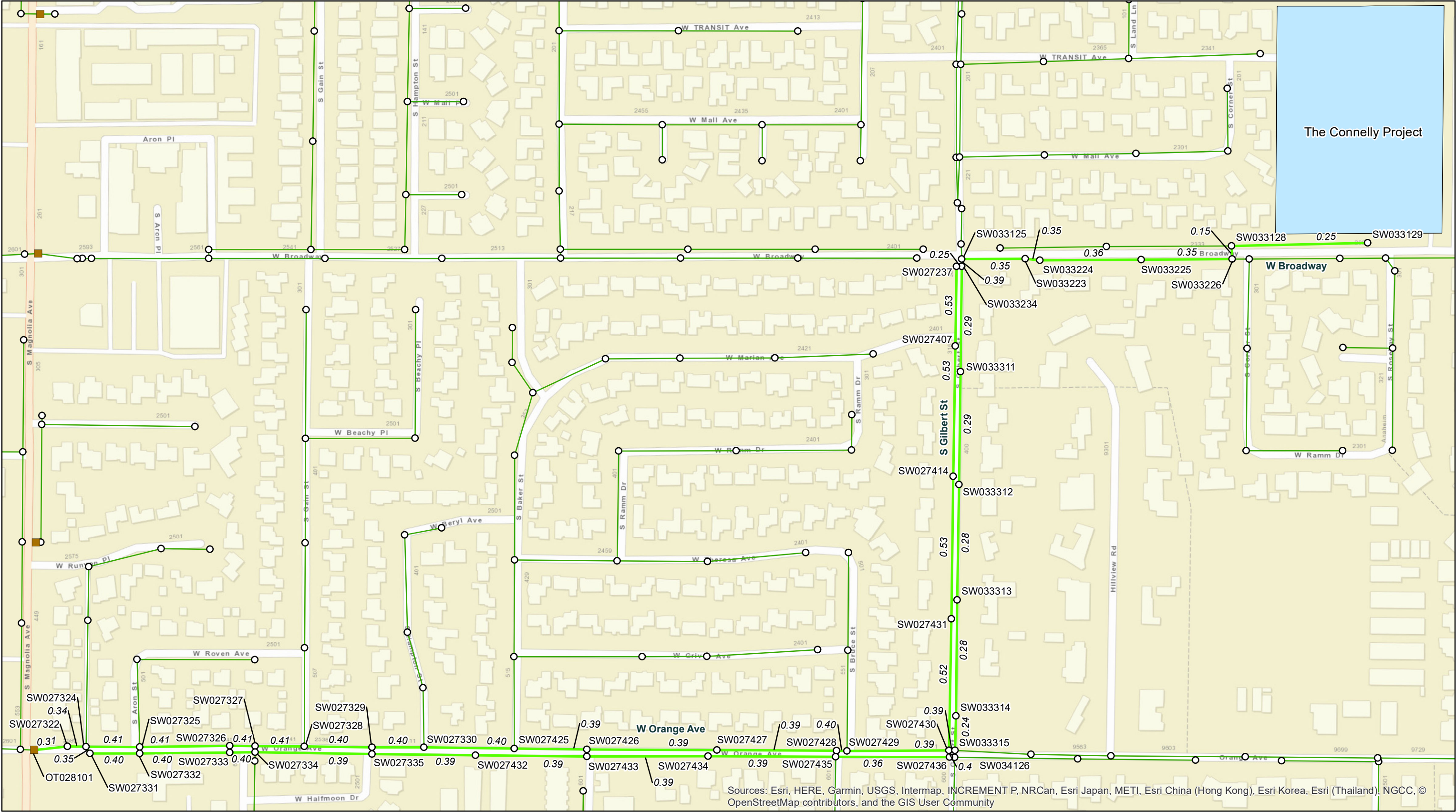
3.1 Scenario 1 – WAMPSS Existing Condition plus The Connelly Project

The first scenario builds on the WAMPSS Existing Condition model scenario, but assumes the Connelly Project is fully built and occupied. The flow for the existing institutional parcel was removed from the scenario and the flows for the proposed residential units as presented in **Section 2.4** above was added. The steady state loading from the Connelly Project in this scenario is 24,080 gallons per day (gpd), an increase of 21,937 gpd over the WAMPSS Existing Condition loading from the existing institutional land use.

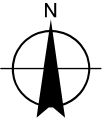
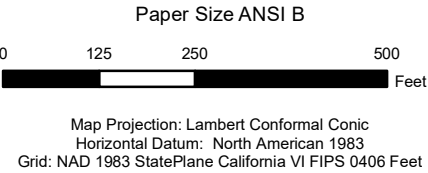
Analysis of this scenario revealed no deficiencies in the pipelines downstream of the proposed development. The peak flows in these pipelines were within the allowable d/D ratios, with a maximum d/D ratio of 0.53 observed in the 15-inch sewer main on the west side of Gilbert Street. With the exception of Pipe SW033129-SW033128, maximum flow velocities of over 2 feet per second (ft/s) were observed in all of downstream sewer reaches. Pipe SW033129-SW033128 has a low flow velocity since it is located at the upstream end of the 8-inch sewer main adjacent to the proposed development, with the flows from the development and a single residential parcel as its only sources. The hydraulic model results are presented in **Table 3.1** from upstream to downstream and in **Figure 3.1**.

Table 3.1 - WAMPSS Existing Condition plus The Connelly Project Model Results

Pipe ID	Pipe Diameter (inch)	Pipe Length (feet)	Pipe Slope	WAMPSS Existing Condition			WAMPSS Existing Condition + The Connelly Project		
				Maximum Flow (MGD)	Maximum Velocity (ft/s)	Maximum d/D	Maximum Flow (MGD)	Maximum Velocity (ft/s)	Maximum d/D
W Broadway									
SW033129-SW033128	8	370	0.0017	0.003	0.5	0.07	0.043	1.0	0.25
SW033128-SW033226	8	45	0.0146	0.006	1.2	0.06	0.046	2.2	0.15
SW033226-SW033225	21	245	0.0020	1.194	2.5	0.35	1.229	2.5	0.35
SW033225-SW033224	21	273	0.0020	1.196	2.5	0.35	1.232	2.5	0.36
SW033224-SW033223	21	36	0.0022	1.198	2.6	0.34	1.234	2.6	0.35
SW033223-SW033125	21	161	0.0020	1.199	2.5	0.35	1.235	2.5	0.35
S Gilbert St (18" - East Parallel)									
SW033125-SW033234	21	15	0.0027	1.646	3.0	0.38	1.683	3.0	0.39
SW033234-SW033311	18	290	0.0020	0.556	2.0	0.29	0.566	2.0	0.29
SW033311-SW033312	18	308	0.0022	0.559	2.1	0.28	0.568	2.1	0.29
SW033312-SW033313	18	315	0.0024	0.561	2.2	0.28	0.570	2.2	0.28
SW033313-SW033314	18	315	0.0024	0.563	2.2	0.28	0.573	2.2	0.28
SW033314-SW033315	18	104	0.0047	0.564	2.8	0.24	0.574	2.8	0.24
S Gilbert St (15" - West Parallel)									
SW033234-SW027237	15	11	0.0403	1.091	7.3	0.24	1.118	7.4	0.25
SW027237-SW027407	15	202	0.0024	1.091	2.6	0.52	1.118	2.6	0.53
SW027407-SW027414	15	378	0.0024	1.092	2.6	0.52	1.120	2.6	0.53
SW027414-SW027431	15	376	0.0024	1.093	2.6	0.52	1.120	2.6	0.53
SW027431-SW027430	15	376	0.0026	1.095	2.7	0.51	1.122	2.7	0.52
W Orange Ave (18" - North Parallel)									
SW033315-SW027430	18	10	0.0030	1.186	2.9	0.39	1.196	2.9	0.39
SW027430-SW027429	18	279	0.0028	1.140	2.8	0.39	1.159	2.8	0.39
SW027429-SW027428	18	24	0.0025	1.146	2.7	0.40	1.164	2.7	0.40
SW027428-SW027427	18	332	0.0028	1.147	2.8	0.39	1.165	2.8	0.39
SW027427-SW027426	18	356	0.0028	1.148	2.8	0.39	1.166	2.8	0.39
SW027426-SW027425	18	200	0.0028	1.150	2.8	0.39	1.168	2.8	0.39
SW027425-SW027330	18	245	0.0028	1.205	2.8	0.40	1.223	2.9	0.40
SW027330-SW027329	18	144	0.0028	1.213	2.8	0.40	1.231	2.9	0.40
SW027329-SW027328	18	184	0.0028	1.213	2.9	0.40	1.232	2.9	0.40
SW027328-SW027327	18	138	0.0028	1.236	2.8	0.41	1.254	2.9	0.41
SW027327-SW027326	18	65	0.0028	1.237	2.8	0.41	1.255	2.9	0.41
SW027326-SW027325	18	240	0.0028	1.238	2.8	0.41	1.256	2.9	0.41
SW027325-SW027324	18	146	0.0029	1.244	2.9	0.40	1.262	2.9	0.41
SW027324-SW027322	24	44	0.0045	2.469	4.0	0.34	2.506	4.1	0.34
SW027322-OT028101	18	99	0.0310	2.470	8.3	0.31	2.507	8.3	0.31
W Orange Ave (18" - South Parallel)									
SW027430-SW027436	18	8	0.0025	1.140	2.7	0.40	1.159	2.7	0.40
SW027436-SW027435	18	311	0.0037	1.141	3.1	0.36	1.159	3.1	0.36
SW027435-SW027434	18	335	0.0029	1.162	2.8	0.39	1.181	2.8	0.39
SW027434-SW027433	18	335	0.0029	1.165	2.8	0.39	1.183	2.8	0.39
SW027433-SW027432	18	291	0.0029	1.170	2.8	0.39	1.188	2.8	0.39
SW027432-SW027335	18	291	0.0029	1.174	2.8	0.39	1.193	2.9	0.39
SW027335-SW027334	18	318	0.0029	1.181	2.9	0.39	1.199	2.9	0.39
SW027334-SW027333	18	61	0.0030	1.212	2.9	0.39	1.230	2.9	0.40
SW027333-SW027332	18	237	0.0029	1.214	2.9	0.40	1.232	2.9	0.40
SW027332-SW027331	18	135	0.0029	1.217	2.9	0.40	1.235	2.9	0.40
SW027331-SW027324	18	6	0.0050	1.217	3.5	0.34	1.235	3.5	0.35



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



LEGEND

- Existing Non-Deficient Lines
- Non-Deficient Lines Downstream of Study Area
- The Connelly Project Study Area

- Existing Manhole
- Existing Connection to OCSD Trunk
- 0.30 Maximum d/D Ratio



City of Anaheim Department of Public Works Job Number 11140066
The Connelly Project (2323 W. Broadway) Date 18 Dec 2020
Sewer Analysis
Scenario 1 Existing Condition
Plus The Connelly Project
Model Results

Figure 3.1



3.2 Scenario 2 – WAMPSS Build-Out Condition plus The Connelly Project

Scenario 2 expands on the WAMPSS Build-Out model scenario with the inclusion of the loadings from the Connelly Project. For the purpose of the model and based on an evaluation of the historical water usage trends, the WAMPSS established the Existing and Build-Out flow factors to be the same. The proposed per capita sewer generation factor is conservative compared to the Existing Condition sewer flows that were confirmed by sewer flow monitoring data. It is expected that the ongoing water conservation efforts such as the installation of low flow water fixtures will keep the per capita generation factor relatively stable. The average household densities are also expected to remain stable based on historical census trends.

Even though the flow factors are the same between the Existing Condition and Build-Out Condition scenarios, the Build-Out Condition flow is equal to or higher than the Existing Condition flow since the maximum building density from the General Plan was applied when determining the flow from each parcel, except for the subject parcel of this analysis. The sewer loadings from the Connelly Project are identical for Scenario 1 and Scenario 2 since it is assumed the proposed residences will remain in occupancy under the Build-Out Condition based on typical building life spans.

The main purpose of Scenario 2 is to identify any potential deficiencies in the downstream sewer reaches due to the increased Build-Out Condition flows from the rest of the tributary area and an increased flow from the subject parcel compared to its existing land use as an institutional parcel.

Analysis of this scenario also revealed no deficiencies in the pipelines downstream of the proposed development. The peak flows in these pipelines were within the allowable d/D ratios, with a maximum d/D ratio of 0.64 observed in the 15-inch sewer main on the west side of Gilbert Street. Similar to Scenario 1, maximum flow velocities of over 2 feet per second (ft/s) were observed in all of downstream sewer reaches except for Pipe SW033129-SW033128. The hydraulic model results are presented in **Table 3.2** from upstream to downstream and in **Figure 3.2**.

Table 3.2 - WAMPSS Build-Out Condition plus The Connelly Project Model Results

Pipe ID	Pipe Diameter (inch)	Pipe Length (feet)	Pipe Slope	WAMPSS Build-Out Condition			WAMPSS Build-Out Condition + The Connelly Project		
				Maximum Flow (MGD)	Maximum Velocity (ft/s)	Maximum d/D	Maximum Flow (MGD)	Maximum Velocity (ft/s)	Maximum d/D
W Broadway									
SW033129-SW033128	8	370	0.0017	0.003	0.5	0.07	0.043	1.0	0.25
SW033128-SW033226	8	45	0.0146	0.006	1.2	0.06	0.046	2.2	0.15
SW033226-SW033225	21	245	0.0020	1.618	2.7	0.41	1.653	2.7	0.42
SW033225-SW033224	21	273	0.0020	1.622	2.7	0.41	1.657	2.7	0.42
SW033224-SW033223	21	36	0.0022	1.625	2.8	0.40	1.660	2.8	0.41
SW033223-SW033125	21	161	0.0020	1.625	2.7	0.41	1.660	2.7	0.42
S Gilbert St (18" - East Parallel)									
SW033125-SW033234	21	15	0.0027	2.184	3.2	0.45	2.220	3.3	0.45
SW033234-SW033311	18	290	0.0020	0.693	2.2	0.32	0.702	2.2	0.33
SW033311-SW033312	18	308	0.0022	0.699	2.2	0.32	0.708	2.3	0.32
SW033312-SW033313	18	315	0.0024	0.704	2.3	0.31	0.713	2.3	0.32
SW033313-SW033314	18	315	0.0024	0.712	2.3	0.31	0.721	2.3	0.32
SW033314-SW033315	18	104	0.0047	0.715	3.0	0.26	0.724	3.0	0.27
S Gilbert St (15" - West Parallel)									
SW033234-SW027237	15	11	0.0403	1.492	8.0	0.29	1.519	8.0	0.29
SW027237-SW027407	15	202	0.0024	1.492	2.8	0.64	1.519	2.8	0.64
SW027407-SW027414	15	378	0.0024	1.493	2.8	0.63	1.521	2.8	0.64
SW027414-SW027431	15	376	0.0024	1.494	2.8	0.63	1.521	2.8	0.64
SW027431-SW027430	15	376	0.0026	1.497	2.9	0.62	1.524	2.9	0.63
W Orange Ave (18" - North Parallel)									
SW033315-SW027430	18	10	0.0030	1.524	3.1	0.45	1.533	3.1	0.45
SW027430-SW027429	18	279	0.0028	1.510	3.0	0.45	1.529	3.0	0.46
SW027429-SW027428	18	24	0.0025	1.516	2.9	0.47	1.535	2.9	0.47
SW027428-SW027427	18	332	0.0028	1.517	3.0	0.45	1.536	3.0	0.46
SW027427-SW027426	18	356	0.0028	1.519	3.0	0.45	1.537	3.0	0.46
SW027426-SW027425	18	200	0.0028	1.520	3.0	0.45	1.539	3.0	0.46
SW027425-SW027330	18	245	0.0028	1.575	3.1	0.46	1.594	3.1	0.47
SW027330-SW027329	18	144	0.0028	1.583	3.0	0.47	1.602	3.1	0.47
SW027329-SW027328	18	184	0.0028	1.584	3.1	0.46	1.603	3.1	0.47
SW027328-SW027327	18	138	0.0028	1.606	3.0	0.47	1.625	3.1	0.47
SW027327-SW027326	18	65	0.0028	1.607	3.1	0.47	1.626	3.1	0.47
SW027326-SW027325	18	240	0.0028	1.608	3.0	0.47	1.627	3.1	0.47
SW027325-SW027324	18	146	0.0029	1.614	3.1	0.47	1.633	3.1	0.47
SW027324-SW027322	24	44	0.0045	3.242	4.4	0.39	3.279	4.4	0.40
SW027322-OT028101	18	99	0.0310	3.243	8.9	0.36	3.280	8.9	0.36
W Orange Ave (18" - South Parallel)									
SW027430-SW027436	18	8	0.0025	1.510	2.9	0.47	1.529	2.9	0.47
SW027436-SW027435	18	311	0.0037	1.511	3.4	0.42	1.529	3.4	0.42
SW027435-SW027434	18	335	0.0029	1.532	3.1	0.45	1.550	3.1	0.46
SW027434-SW027433	18	335	0.0029	1.536	3.1	0.45	1.554	3.1	0.46
SW027433-SW027432	18	291	0.0029	1.547	3.1	0.46	1.566	3.1	0.46
SW027432-SW027335	18	291	0.0029	1.559	3.1	0.46	1.578	3.1	0.46
SW027335-SW027334	18	318	0.0029	1.566	3.1	0.46	1.584	3.1	0.46
SW027334-SW027333	18	61	0.0030	1.591	3.1	0.46	1.610	3.1	0.46
SW027333-SW027332	18	237	0.0029	1.601	3.1	0.46	1.620	3.1	0.47
SW027332-SW027331	18	135	0.0029	1.619	3.1	0.47	1.638	3.1	0.47
SW027331-SW027324	18	6	0.0050	1.619	3.8	0.40	1.638	3.8	0.40



4. Conclusion

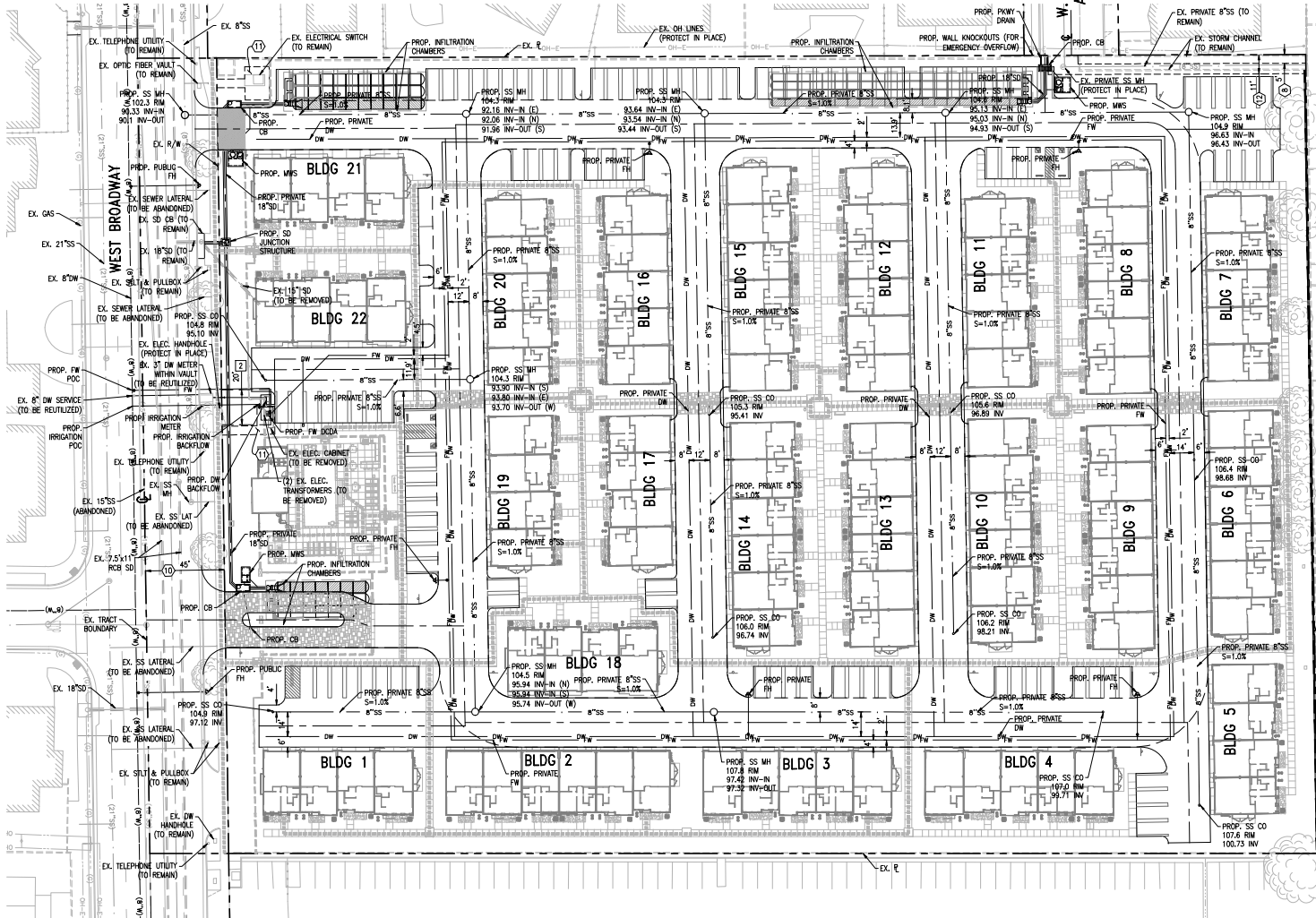
The Connelly Project is a proposed residential development at the existing site of the Cornelia Connelly School on the north side of West Broadway east of Gilbert Street. The project consists of redeveloping the 6.5-acre lot into 112 low-medium density residential townhomes.

The Connelly Project is projected to contribute a steady state sewage flow of 24,080 gpd, which represents an increase of 21,937 gpd over the sewer loading from the existing institutional land use. Despite the increase in sewer contribution from the proposed development, the sewer analysis revealed no hydraulic deficiencies in the pipelines downstream of the Connelly Project in the Existing Condition and Build-Out Condition model scenarios. Maximum d/D ratios of up to 0.64 was observed at the 15-inch sewer main on the west side of Gilbert Street, which are well within the City's maximum allowable d/D of 0.75 for pipes with diameters equal to or greater than 12 inches.

Attachment
Proposed Development Preliminary Utility Plan

TENTATIVE TRACT MAP NO. 19137

2323 W. BROADWAY
CITY OF ANAHEIM, COUNTY OF ORANGE
STATE OF CALIFORNIA



LEGEND:

- CENTERLINE
- EX. BOUNDARY
- PROP. BOUNDARY
- EASEMENT
- PROP. FIRE WATER
- PROP. DOMESTIC WATER
- PROP. SANITARY SEWER
- PROP. STORM DRAIN

UTILITY NOTES:

1. ALL ONSITE WET UTILITIES SHALL BE PRIVATE, PRIVATELY OWNED AND MAINTAINED BY PROPOSED LOT OWNER AND/OR HOMEOWNERS' ASSOCIATION.
2. ANY/ALL IMPROVEMENTS PROPOSED OR REQUIRED WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE CONSTRUCTED UNDER A SEPARATE RIGHT-OF-WAY CONSTRUCTION PERMIT (ROP) IN ACCORDANCE WITH THE CITY STANDARDS AND SUBJECT TO THE APPLICABLE SUBMITTAL AND FEE/DEPOSIT REQUIREMENTS.
3. THE DEVELOPER/OWNER SHALL POthOLE ALL UTILITY CROSSINGS AND CONNECTION POINTS DURING DESIGN PHASE TO VERIFY ADEQUATE CLEARANCES PER CITY REQUIREMENTS.
4. PROPOSED PUBLIC WATER EASEMENTS PER SEPARATE INSTRUMENT. APPLICANT SHALL COORDINATE WITH ANAHEIM PUBLIC UTILITIES, WATER ENGINEERING DIVISION FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

PROPOSED UTILITY EASEMENTS:

- 2 PUBLIC WATER EASEMENT FOR LOT 1

EXISTING UTILITY EASEMENTS:

- (TO REMAIN)
- 8 AN EASEMENT FOR UNDERGROUND DRAINAGE AND INCIDENTAL PURPOSES THROUGH THE WEST 5 FEET OF THE WEST 225.70 FEET OF THE EAST 456.30 FEET OF THE SOUTHEAST 4 OF THE NORTHWEST 4 OF THE NORTHEAST 4 OF S4D SECTION 18, NORTH 130 FEET AS CONVEYED TO JACK LEVINE, IRA FOREST AND JOSEPH M. GRABBY BY DEED RECORDED MARCH 11, 1959 IN BOOK 4621, PAGE 491 OF OFFICIAL RECORDS.
- 10 AN EASEMENT IN FAVOR OF THE CITY OF ANAHEIM, A MUNICIPAL CORPORATION FOR ROAD, PUBLIC UTILITY AND INCIDENTAL PURPOSES, RECORDING DATE: JANUARY 31, 1961 RECORDING NO. IN BOOK 5613, PAGE 114, OF OFFICIAL RECORDS.
- 11 AN EASEMENT IN FAVOR OF THE CITY OF ANAHEIM, A MUNICIPAL CORPORATION FOR PUBLIC UTILITY PURPOSES, INCLUDING INGRESS AND EGRESS, FOR THE INSTALLATION AND MAINTENANCE OF ELECTRICAL, WATER, AND TELECOMMUNICATION FACILITIES AND INCIDENTAL PURPOSES RECORDING DATE: MAY 16, 2003, RECORDING NO: INSTRUMENT NO. 2003-565662, OF OFFICIAL RECORDS.
- 12 MATTERS CONTAINED IN THAT CERTAIN DOCUMENT ENTITLED: GRANT OF EASEMENT, RECORDING DATE: JULY 28, 2003, RECORDING NO: INSTRUMENT NO. 2003-884804, OF OFFICIAL RECORDS.



REVISIONS

NO.	DATE	INITIAL	DESCRIPTION	APP	DATE

DEVELOPER :

MELIA HOMES
8951 RESEARCH DRIVE, #100
IRVINE, CA 92618
PHONE (949) 759-4367

SOILS ENGINEER :

GEOTEK, INC.
1044 N. WILLOW STREET
CORONA, CA 92680
PHONE (951) 712-1180

PREPARED BY :

CIVIL
CONSULTING, INC.
CIVIL ENGINEERING
LAND PLANNING & SURVEYING
www.civconline.net

9430 RYAN CENTER DRIVE
IRVINE, CALIFORNIA 92618
949 610-3800
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TENTATIVE TRACT MAP NO. 19137

PRELIMINARY UTILITY PLAN

SCALE: AS SHOWN DRAWN BY: LB CHECKED BY: JH

CITY OF ANAHEIM

DATE: 12/4/2020

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