

**From:** [Sadorra, Rey](#)  
**To:** [Ruano, Jose](#)  
**Cc:** [Rood, Timothy](#)  
**Subject:** Fw: DSAP Infrastructure Capacity Update  
**Date:** Wednesday, April 1, 2020 2:46:21 PM  
**Attachments:** [DSAP Amendment Preliminary Analysis \(March 30, 2020\).docx](#)

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Hi Jose--here is sewer modeling analysis and results for the updated DSAP numbers from PW Storm/Sewer team.

Please let me know if you have any questions.

Thanks!

## **Reyjun Sadorra**

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Development Services  
200 E. Santa Clara St | San Jose, CA 95113  
Tel: 408.535.5679  
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**From:** Guo, Shelley <Shelley.Guo@sanjoseca.gov>  
**Sent:** Monday, March 30, 2020 8:42 PM  
**To:** Sadorra, Rey <rey.sadorra@sanjoseca.gov>  
**Cc:** Tom, Vivian <Vivian.Tom@sanjoseca.gov>; Cheong, Winola <winola.cheong@sanjoseca.gov>; Hirasaki, Casey <Casey.Hirasaki@sanjoseca.gov>  
**Subject:** Re: DSAP Infrastructure Capacity Update

Hi Rey,

Please find the attached word document of sanitary sewer modeling analysis and result summary based on the land use information provided by Planning below.

Shelley

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**From:** Sadorra, Rey <rey.sadorra@sanjoseca.gov>  
**Sent:** Monday, March 9, 2020 4:09 PM  
**To:** Guo, Shelley <Shelley.Guo@sanjoseca.gov>  
**Cc:** Tom, Vivian <Vivian.Tom@sanjoseca.gov>; Cheong, Winola <winola.cheong@sanjoseca.gov>; Hirasaki, Casey <Casey.Hirasaki@sanjoseca.gov>  
**Subject:** FW: DSAP Infrastructure Capacity Update

Hi Shelley,

We received the updated capacity analysis for DSAP+ Google max build out numbers from Planning (see email below). I'm not sure if you've already been provided these information for the DSAP

update. A fair amount of comments were concerns about the ADEIR & current DSAP referencing outdated infrastructure analysis data back from 2017 that was using land use data from 2014. Attached is SOM's bldg capacity analysis for DSAP (including Google) for use to update the models. I anticipate that the new numbers will have increased impact on your modeling.

Also, attached is the DSAP section on Infrastructure Capacity and Demand. Per Planning's request below, please review this section and let us know if any information needs to be updated or kept/removed. I wasn't told when they need all these information to be provided, but they would like to have it ASAP.

Please let me know if you have any questions and if there is anything else I can provide you with.

Thanks,

**Reyjun Sadorra**

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**From:** Ruano, Jose  
**Sent:** Monday, March 9, 2020 10:15 AM  
**To:** Sadorra, Rey <rey.sadorra@sanjoseca.gov>  
**Cc:** Tom, Vivian <Vivian.Tom@sanjoseca.gov>; Rood, Timothy <timothy.rood@sanjoseca.gov>  
**Subject:** RE: DSAP Infrastructure Capacity Update

Hi Rey,

Please find SOM's building capacity analysis for DSAP attached (internal document). The max buildout numbers used in the environmental analysis take the maximum from two different scenarios and are as follow:

- **Commercial: 14,144,154 sqft** (includes 6,500,000 sqft. of office and 500,000 sqft. of retail for Google)
- **Residential: 12,619 units** (includes 5,000 units for Google)

I have also attached the existing DSAP section on Infrastructure Capacity and Demand (Word and Pdf). Please note that the word document only includes text (refer to the pdf for graphics and charts).

As you review the following sections please look out for any updates.

Highlight text/graphics that will be kept in the DSAP in GREEN.

Highlight text/graphics that will be updated in YELLOW. Provide updated text/graphics or a timeline of when text/graphics will be provided (if information is not yet available).

Strikeout text/graphics that will be removed in RED.

Please let me know if you have any questions and if there is anything else I can provide you with.

Thanks,

Jose



**Jose Ruano**, Planner II

Department of Planning, Building and Code Enforcement

City of San José | 200 E. Santa Clara St. 3<sup>rd</sup> Floor | San José, CA 95113

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**From:** Sadorra, Rey

**Sent:** Monday, March 9, 2020 9:47 AM

**To:** Ruano, Jose <[Jose.Ruano@sanjoseca.gov](mailto:Jose.Ruano@sanjoseca.gov)>

**Cc:** Tom, Vivian <[Vivian.Tom@sanjoseca.gov](mailto:Vivian.Tom@sanjoseca.gov)>

**Subject:** DSAP Infrastructure Capacity Update

Hi Jose,

We'd like to get the updated capacity numbers for DSAP build out + Google so PW can update the infrastructure modeling and provide you with updated info.

Thanks!

**Reyjun Sadorra**

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**Diridon Station Area Plan (DSAP) Land Use Amendment**  
**Sanitary Sewer System Impact Analysis**  
3/30/2020

This document summarizes the preliminary results of the sanitary sewer capacity impact analysis for the Diridon Station Area Plan (DSAP) development project. The DSAP project was previously analyzed in 2016 using land use data provided at that time. The project has since then amended its growth projections and has recently submitted new information to the City. This analysis is therefore based on the amended land use data specified in the *Diridon Amendment Capacity Study*; January 24, 2020 submittal.

**Land Use Options:**

According to the *Diridon Amendment Capacity Study*, two options are being considered: Option 2A and Option 2B. At the request of PBCE, a new option, Option Max (2A, 2B), is created for the purpose of this analysis. This option takes the maximum buildout land use from each of the two options to create a worst case scenario. Land use quantities are summarized in **Table 1** below.

Note that the overall DSAP area also encompasses Google Village (GV), which has additional growth and land use projections. Per the latest land use data provided by the GV team, the GV project is expected to have up to 5,900 residential units, 7,300,000 ft<sup>2</sup> of office space, 500,000 ft<sup>2</sup> of retail space, and other miscellaneous land uses.

**Table 1: Land Use Options (not including Google)**

Land Use Option	Residential (DU)	Office Space (ft <sup>2</sup> )	Retail Space (ft <sup>2</sup> )
Option 2A	7,619	5,096,103	536,105
Option 2B	6,029	6,608,049	536,105
<b>Max (2A, 2B)</b>	<b>7,619</b>	<b>6,608,049</b>	<b>536,105</b>

Growth is assigned to DSAP parcels according to parcel size and residential density (for residential units) or height allowance (for office space and retail space) as specified in the *Diridon Amendment Capacity Study*, while growth for GV parcels is assigned according to land use data provided by the GV team. Average daily sanitary sewer discharge (often referred to as average dry weather flow, or ADWF) is estimated by multiplying each land use type by a corresponding unit flow factor. Land use data and flow estimates for both DSAP and GV parcels are summarized in **Table 2**.

**Table 2: DSAP Sanitary Sewer Average Dry Weather Flow (ADWF) Estimations**

Area	Land Use	Quantity	Unit Flow Factor	ADWF (mgd)	Total ADWF
DSAP parcels outside of GV	Residential	7,619 DU	192.4 gpd/DU	1.47	2.44 mgd
	Office	6,608,049 ft <sup>2</sup>	0.14 gpd/ft <sup>2</sup>	0.93	
	Retail	536,105 ft <sup>2</sup>	0.076 gpd/ft <sup>2</sup>	0.04	
Parcels within GV	Residential	5,900 DU	192.4 gpd/DU	1.14	2.64 mgd
	Office	7,300,000 ft <sup>2</sup>	0.14 gpd/ft <sup>2</sup>	1.02	
	Retail	500,000 ft <sup>2</sup>	0.076 gpd/ft <sup>2</sup>	0.33	
	Other	varies	varies	0.15	
				<b>Grand Total:</b>	<b>5.08 mgd</b>

**Diridon Station Area Plan (DSAP) Land Use Amendment**  
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3/30/2020

**Model Scenarios:**

The GV project is also considering four options of connecting into the City's sanitary sewer system, and each discharge option would result in different flow situations downstream. As such, four model scenarios are built to represent each discharge option, as summarized in **Table 3** below.

**Table 3: Model Scenarios**

#	Scenario	Description
1	Business-As-Usual	GV parcels would connect to nearby sanitary sewer lines via individual laterals.
2	Almaden Discharge	GV would consolidate flows via a pressurized system (utilidor) and discharge to a 33" line in Almaden Blvd.
3	Park Discharge	GV would consolidate flows via utilidor and discharge to a 33" line in Park Ave.
4	North/South Discharge	GV would consolidate flows via two utilidors and discharge to a 27" line in W Julian St. and a 33" line in Park Ave.

Scenario 1 utilizes the conventional method of connecting each building to a gravity sewer main via individual laterals, whereas scenarios 2 through 4, in contrast, utilize a pressurized system to consolidate flows from each building and convey them to a centralized discharge point. Since pressurized systems do not have wet weather inflow and infiltration (I/I) flows that are normally associated with conventional gravity connections, I/I flows are not applied to GV parcels in scenarios 2 through 4.

**Preliminary Results:**

A 10-year, 24-hour design storm is applied to each scenario to assess the system's capacity to handle peak wet weather flow under long-term (i.e., buildout) conditions. According to the City's 1982 Level of Service (LOS) policy, pipes having a LOS lower than Level "D" or flowing full at peak flow (i.e., surcharged) are considered deficient and require improvements. As such, pipes predicted to be surcharged in the model are reviewed and tested for improvements. Local surcharges – where surcharges are due to pipes with flat or reverse slopes – are not deemed as deficient in this analysis and no improvements are proposed.

Deficiencies and their recommended improvements are summarized in **Table 4**. Deficiencies are also shown in **Figure 1** and recommended improvements are shown in **Figure 2**. These deficiencies apply to all four scenarios unless otherwise noted. Also note that deficiencies are dependent on growth projections (which depends on land use) and assumptions of loading points. An update to this analysis is required if/when the project scope changes or becomes more defined in the future.

In addition to deficiencies identified within the DSAP area, flows from DSAP would be conveyed downstream and contribute to an existing deficiency in one of the City's interceptors in downtown. An improvement project, *Interceptor Improvement Project Phase VII*, has been proposed; preliminary cost estimate for the project is \$49.4M (2019 dollars). Proposed developments in DSAP would add approximately 8.5% of flow to the project.

**Diridon Station Area Plan (DSAP) Land Use Amendment**  
**Sanitary Sewer System Impact Analysis**  
3/30/2020

**Table 4: Preliminary Deficiencies and Required Improvements**

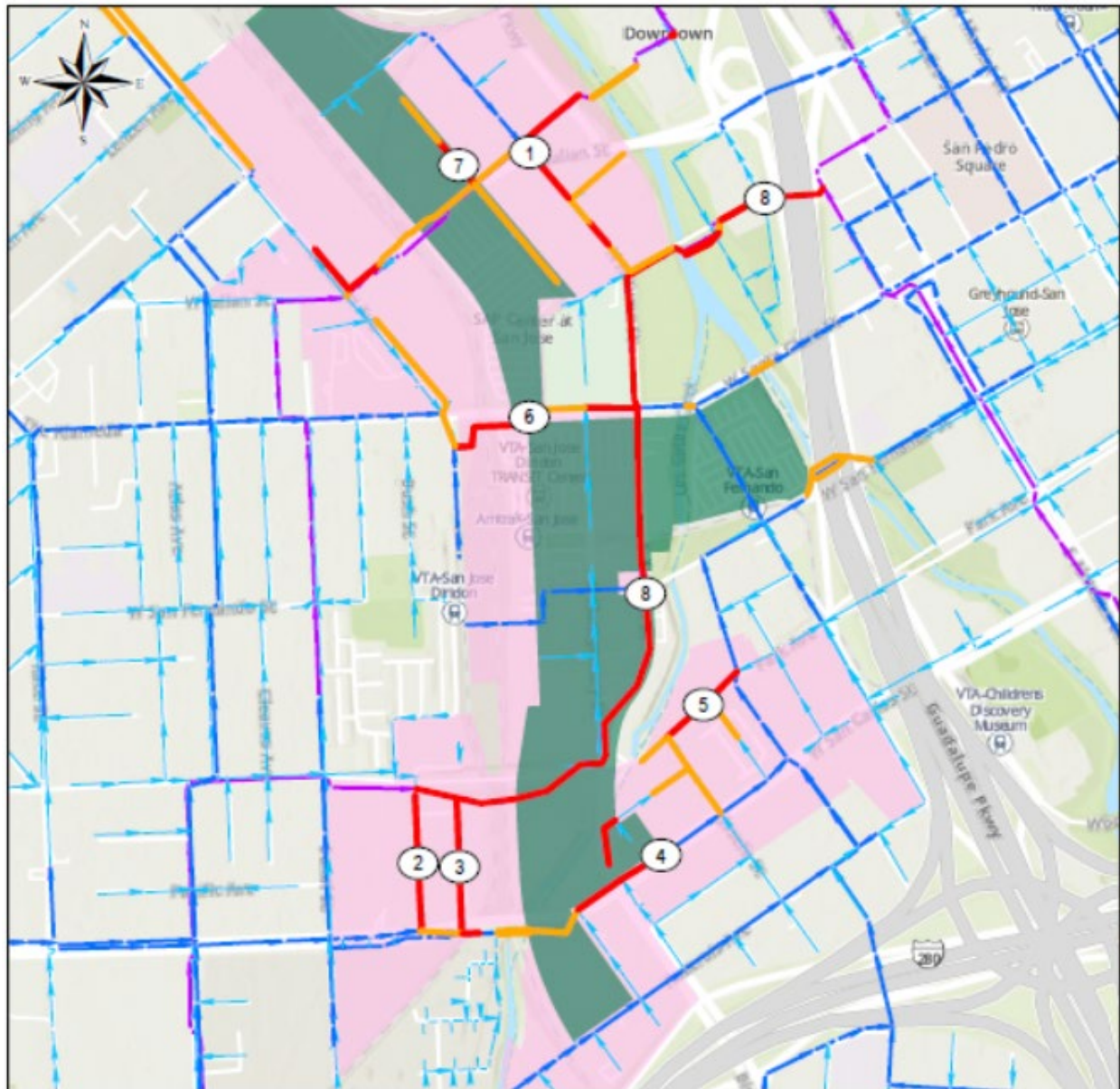
Deficiency ID	Applicable Scenarios	Location	Length (ft)	Existing Diameter	Required Diameter
1	All	Autumn St. between Autumn Ct. and W. Julian St.; then to Autumn Pkwy.	880	8"	10" to 15"
2	All	McEvoy St. between Park Ave. and W San Carlos St.	800	6"	8"
3	All	Dupont St. between Park Ave. and W San Carlos St.	750	6"	10"
4 <sup>(1)</sup>	All	W San Carlos St. between Dupont St. and Gifford Ave.	1,910	12"	15"
5 <sup>(2)</sup>	1 only	Park Ave. between Josefa St. and Gifford Ave.	540	8"	10" to 12"
6	All	W Santa Clara St. between White St. and Autumn St.	1,000	12"	15"
7	All	N Montgomery St. between Cinnabar St. And W Julian St., then to N Autumn St.	970	6" to 8"	8" to 10"
8 <sup>(3)</sup>	3 and 4 only	Park Ave. and McEvoy St. to Autumn St., then to St. John St. and Santa Teresa St.	5,220	33" to 36"	42"

**Notes:**

- (1) Deficiency #4 has a twin 8-inch siphon that crosses Los Gatos Creek. The siphon is not predicted to be deficient and is not included in the total length.
- (2) Deficiency #5 only applies to the Business-As-Usual scenario, in which some GV parcels are loaded upstream of the line.
- (3) Deficiency #8 only applies to the Park Discharge and the North/South Discharge scenarios. This line has a twin 30-inch siphon that crosses the Guadalupe River; the siphon is not predicted to be deficient and is not included in the total length.

**Diridon Station Area Plan (DSAP) Land Use Amendment**  
**Sanitary Sewer System Impact Analysis**  
3/30/2020

**Figure 1: Preliminary Sanitary Sewer Capacity Deficiencies**



**Legend**

Diridon Station Area

Google Village

Surcharge due to Backwater

Surcharge due to Capacity Limitation

Sanitary Sewer Diameter

8"

10"-24"

>24"

0 500 1,000 1,500 2,000 Feet

Google Village Discharge Scenarios:

1. Business-as-Usual: Discharges to local lines based on size and proximity.

2. Park Discharge: Discharges into a 33-in sewer on Park Ave.

3. Almaden Discharge: Discharges into a 33-in sewer on Almaden Blvd.

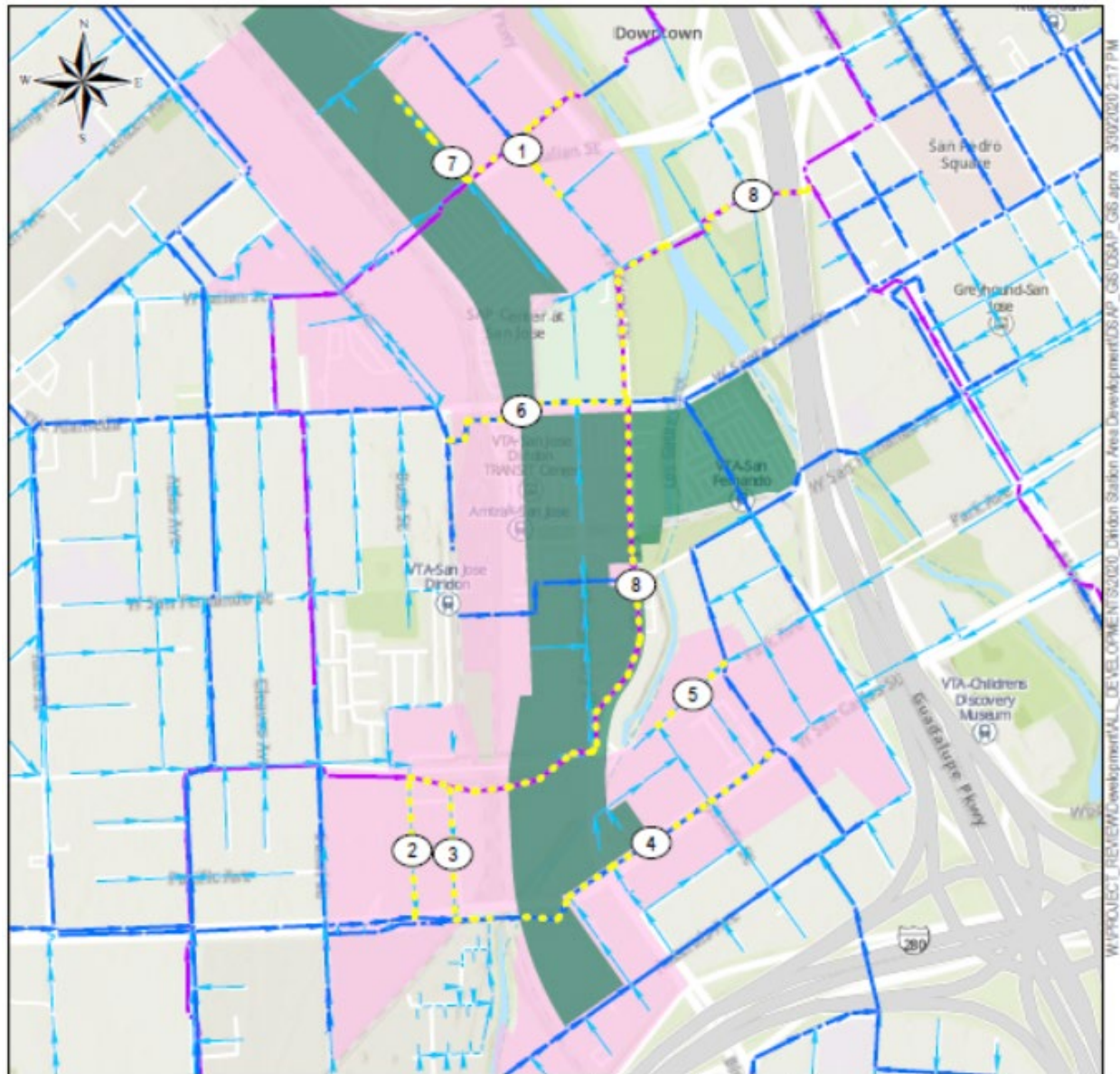
4. North/South Discharge: Discharge is split at W Santa Clara St. The north discharge into a 27-in sewer on W. Julian St. The south discharges into a 33-in sewer on Park Ave.

Deficiency #	Applicable Scenarios	Length (ft)	Existing Diameter
1	All	880	8"
2	All	800	6"
3	All	750	6"
4	All	1,910	12"
5	1	540	8"
6	All	1,000	12"
7	All	970	6" to 8"
8	2 & 4	5,220	33" to 36"



**Diridon Station Area Plan (DSAP) Land Use Amendment**  
**Sanitary Sewer System Impact Analysis**  
3/30/2020

**Figure 2: Preliminary Sanitary Sewer Recommended Improvement Projects**



**Legend**

<span style="display: inline-block; width: 15px; height: 15px; background-color: pink; border: 1px solid black;"></span> Diridon Station Area	<b>Sanitary Sewer Diameter</b>
<span style="display: inline-block; width: 15px; height: 15px; background-color: green; border: 1px solid black;"></span> Google Village	<span style="color: blue;">—</span> 8"
<span style="color: yellow;">- - -</span> Recommended Improvements	<span style="color: blue;">—</span> 10"-24"
	<span style="color: purple;">—</span> >24"

0 500 1,000 1,500 2,000 Feet

**Google Village Discharge Scenarios:**

1. Business-as-Usual: Discharges to local lines based on size and proximity.
2. Park Discharge: Discharges into a 33-in sewer on Park Ave.
3. Almaden Discharge: Discharges into a 33-in sewer on Almaden Blvd.
4. North/South Discharge: Discharge is split at W Santa Clara St. The north discharge into a 27-in sewer on W Julian St. The south discharges into a 33-in sewer on Park Ave.

Deficiency #	Applicable Scenarios	Length (ft)	Existing Diameter	Required Diameter
1	All	880	8"	10" to 15"
2	All	800	6"	8"
3	All	750	6"	10"
4	All	1,910	12"	15"
5	1	540	8"	10" to 12"
6	All	1,000	12"	15"
7	All	970	6" to 8"	8" to 10"
8	2 & 4	5,220	33" to 36"	42"