

FLOODING AND FLOOD-RELATED
DAMAGES REPORT

MORGAN HILL
SANTA CLARA COUNTY

October 13, 2009



Santa Clara Valley
Water District 

SANTA CLARA VALLEY WATER DISTRICT

FLOODING AND FLOOD RELATED
DAMAGES REPORT IN MORGAN HILL

SANTA CLARA COUNTY

OCTOBER 13, 2009

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INTRODUCTION

The City of Morgan Hill experienced a major storm on October 13, 2009, dumping close to 14 inches of rain in the Santa Cruz Mountains and 5 inches in the valley. The storm quickly overwhelmed the City's storm drains and creeks capacities resulting in significant flooding in the downtown area and throughout portions of the city. As a result of the storm, many businesses were flooded, residents were forced to evacuate their homes and gallons of raw sewage were released onto farm lands.

The City of Morgan Hill last flooded in January 2008, and many of the same families and businesses that were impacted then were again impacted by the October 2009 storm.

WEATHER

The storm on October 13, 2009 generated sustained winds in excess 40 mph and dumped more than 5 inches of rain in Morgan Hill over a 15 hour period. It was the 7th worst storm in the Bay Area in 54 years according to the Golden Gate Weather Services Bay Area Storm Index and perhaps even the biggest storm ever to hit the Bay Area in the month of October.

Rainfall and stream flow data for the above storm periods, along with historical data, are contained in Tables 1 and 2.

Figure 1 and 2 illustrate the recorded rainfall amount generated during October 13-14, 2009 near City of Morgan Hill. Figure 3 shows the 48-hour storm total in Santa Clara County during the storm.

FLOODING – October 13, 2009

West Little Llagas Creek overflowed and flooded the following locations:

- Llagas Road and Hale Avenue
- Between Main Avenue and 5th Avenue in downtown Morgan Hill
- Neighborhood south the 1000 block of West Edmundson Avenue and north of Watsonville Road.

Drainage canal alongside Butterfield Boulevard overflowed at several locations

- At San Pedro Avenue
- At Diana Avenue

Figure 4 illustrates Morgan Hill approximate flood inundated area and Appendix A shows photos of the flooded area.

DAMAGE ASSESSMENT AND POST-FLOOD SUMMARY

Followings are facts noted in the October 13, 2009 Storm and Flood Information Pamphlet published by City of Morgan Hill.

- 8 families and about 30 people were displaced from their homes.
- 5 road closures, including 2 which closed off entire neighborhoods
- Estimated \$200,000 in storm related costs for city.

TABLE 1**RAINFALL AMOUNT AND RETURN PERIOD IN SANTA CLARA COUNTY**

Station	6 Hours		24 Hours		48 Hours	
	Total (inches)	Return Period (years)	Total (inches)	Return Period (years)	Total (inches)	Return Period (years)
City of San Jose	1.16	3	1.96	3	1.96	< 2
Castro Valley	2.68	25	3.6	5	3.8	< 2
Valley Christian	4.73	140	9.12	170	9.4	10
Stevens Creek Reservoir	3.22	48	5.87	47	5.99	6
West Yard	1.73	21	3.2	13	3.2	3
Mt Hamilton	2.34	21	4.48	23	4.64	4
Calero Watershed	3.98	500 +	7.06	500 +	7.14	65
Curtner Ranch	1.24	2	2.04	3	2.04	2
Mtn. View Corp Yards	1.27	10	2.23	8	2.23	2
Evergreen	1.27	10	2.27	45	2.27	6
Biel Ranch	1.78	33	3.34	49	3.38	13
Shanti Ashrama	2.54	180	5.3	500 +	5.5	45
Coit Ranch	2.98	500 +	5.96	480	6.08	40
Laguna Seca	1.84	5	3.8	20	4.08	5
Sunnyvale Hamilton WTP	1.65	170	2.88	15	2.92	4
Maryknoll	1.69	10	2.88	6	2.92	< 2
Riconada WTP	2.58	100	4.59	38	4.63	6
Guadalupe Watershed	5.31	97	9.92	183	10.16	17
Vasona Pump Station	2.18	24	3.99	22	4.03	3
Church Ave. Perc. Ponds	2.79	340	5.05	180	5.21	12
Uvas Canyon	7.13	500 +	13.57	500 +	14.13	500 +
Uvas Reservoir	5.23	500 +	9.68	500 +	10.08	100
Alamitos	0.28	< 2	0.64	< 2	0.64	< 2
Johnson Ranch	2.98	130	5.23	84	5.23	8
UTC	2.08	36	3.68	90	3.8	14
Haskins Ranch	1.2	< 2	2.2	< 2	2.2	< 2
Penitencia WTP	1.28	6	2.08	9	2.08	< 2
Loma Prieta	4.64	130	9.22	170	9.7	24
Leroy	3.3	500 +	5.47	500 +	5.55	47
Coyote Reservoir	2.92	500 +	5.34	500 +	5.42	33
Coe Park	2.58	96	4.75	86	4.91	5

TABLE 1 (continued)

RAINFALL AMOUNT AND RETURN PERIOD IN SANTA CLARA COUNTY

Station	6 Hours		24 Hours		48 Hours	
	Total (inches)	Return Period (years)	Total (inches)	Return Period (years)	Total (inches)	Return Period (years)
Almaden Watershed	4.26	500 +	8.59	500 +	8.79	84
Mt Umunhum	6.8	500 +	13.27	500 +	13.83	180
Dahl Ranch	1.36	< 2	2.8	< 2	2.96	< 2
Palo Alto	1	< 2	1.76	2	1.76	< 2

TABLE 2

Peak Flow Values for various Streams in Santa Clara County During October 13, 2009

Lower Penitencia Watershed

Stream Gage #	ALERT ID	Location	Peak Flow (cfs)	Return Period (Years)	Historic Peak		Record Began
					Date	Flow (cfs)	
44	1482	Stevens Ck below Stevens Ck Reservoir	5	1	2/17/1986	5260	1962
32		Permanente at Berry Ave	124	2	3/2/1983	967	1945

West Valley Watershed

Stream Gage #	ALERT ID	Location	Peak Flow (cfs)	Return Period (Years)	Historic Peak		Record Began
					Date	Flow (cfs)	
26 A	1477	Calabazas Ck at Wilcox School	1340	3	12/16/2002	3550	1945
24	2050	San Tomas Ck above Williams Rd	2060	6	1/14/1978	2990	1955
25	----	Saratoga Creek at Pruneridge	395	1	12/23/1955	3760	1943

Guadalupe Creek Watershed

Stream Gage #	ALERT ID	Location	Peak Flow (cfs)	Return Period (Years)	Historic Peak		Record Began
					Date	Flow (cfs)	
73	1485	Canoas Ck at Almaden Expwy	1230	1	1/9/1995	1560	1978
59	1492	Los Gatos Ck at Lark Ave	789	2.5	3/16/1967	4110	1967
50	1494	Los Gatos Ck at Lincoln Ave	664	1	3/10/1995	4980	1955

Coyote Creek Watershed

Stream Gage #	ALERT ID	Location	Peak Flow (cfs)	Return Period (Years)	Historic Peak		Record Began
					Date	Flow (cfs)	
1	1489	Upper Penitencia Ck. at Piedmont Ave	23	1	4/2/1958	3730	1943
83	1548	Upper Penitencia Ck. at Dorel Ave	5	1	1/9/1995	1280	1988

Pajaro River Watershed

Stream Gage #	ALERT ID	Location	Peak Flow (cfs)	Return Period (Years)	Historic Peak		Record Began
					Date	Flow (cfs)	
78		Bodfish Ck at Whitehurst Rd	313	2	1/19/1999	1500	2000
USGS 11153650		Llagas Ck nr Gilroy	1800				2009
USGS 11153470		Llagas Ck ab Chesbro Reservoir	1020				1972* No data 1983-2003

FIGURE 1

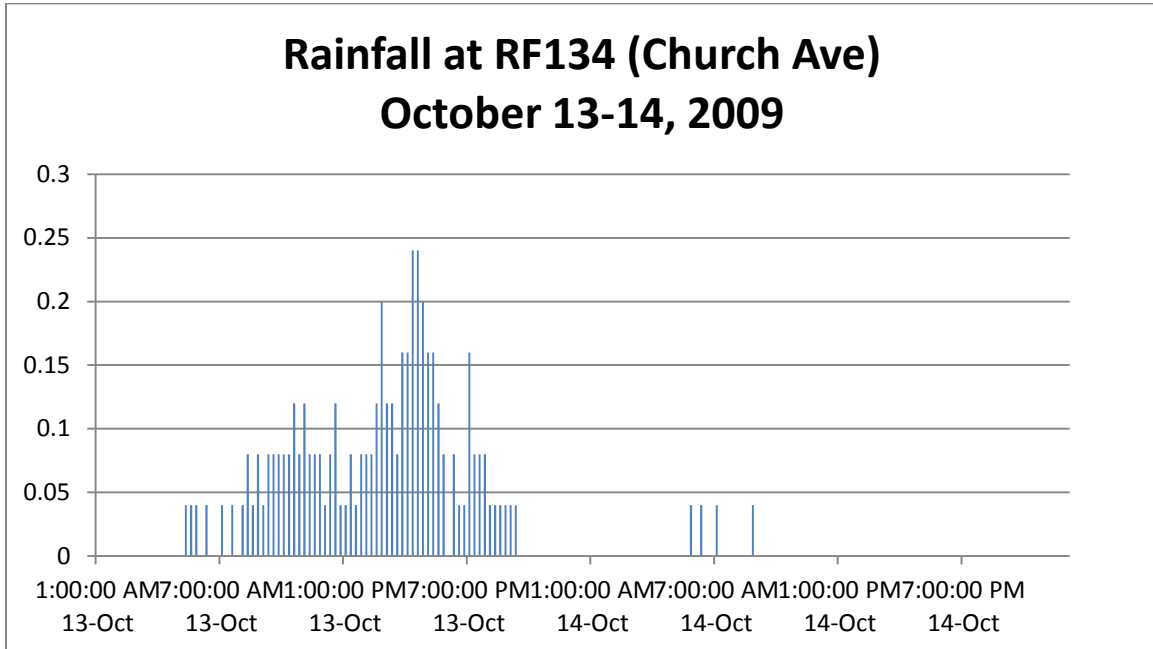


FIGURE 2

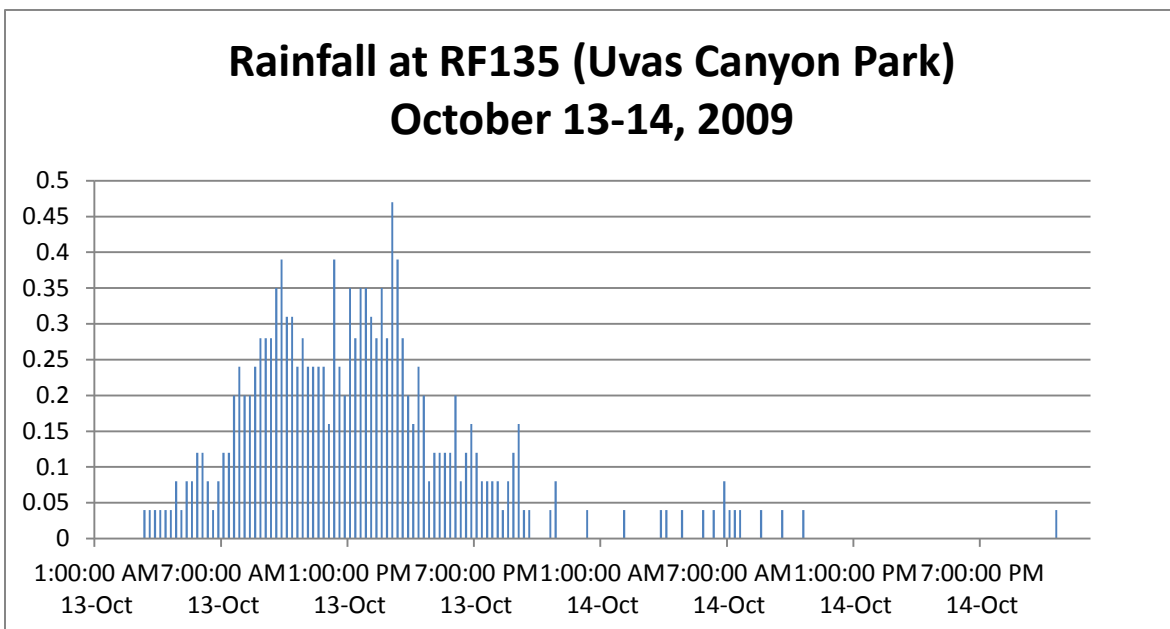


Figure 3

48 Hour Storm Totals October 13 - 14, 2009

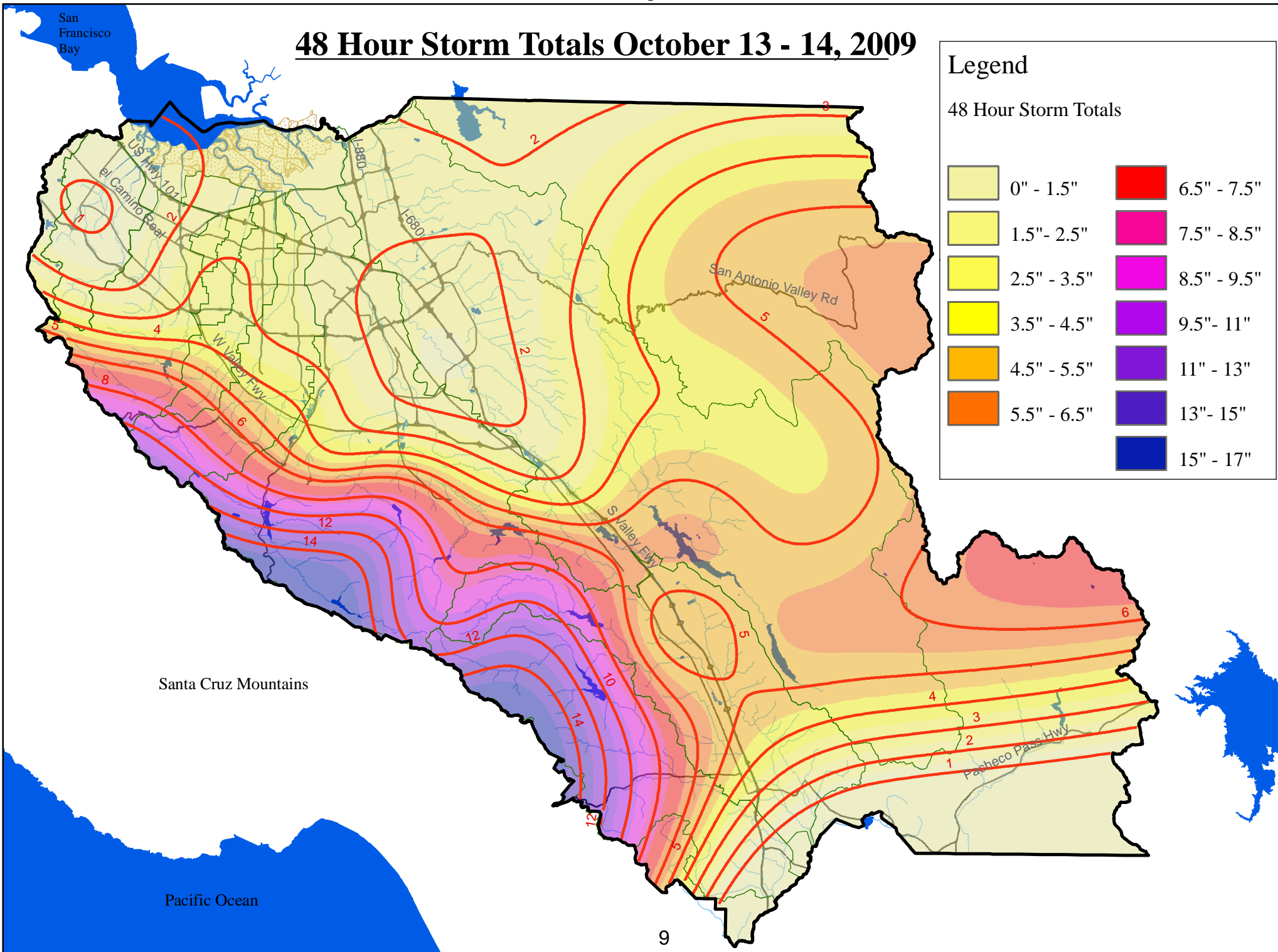


Figure 4

Morgan Hill Approximate Flood Inundated Area
October 13th - 14th, 2009

1. At Llagas Rd & Hale Ave

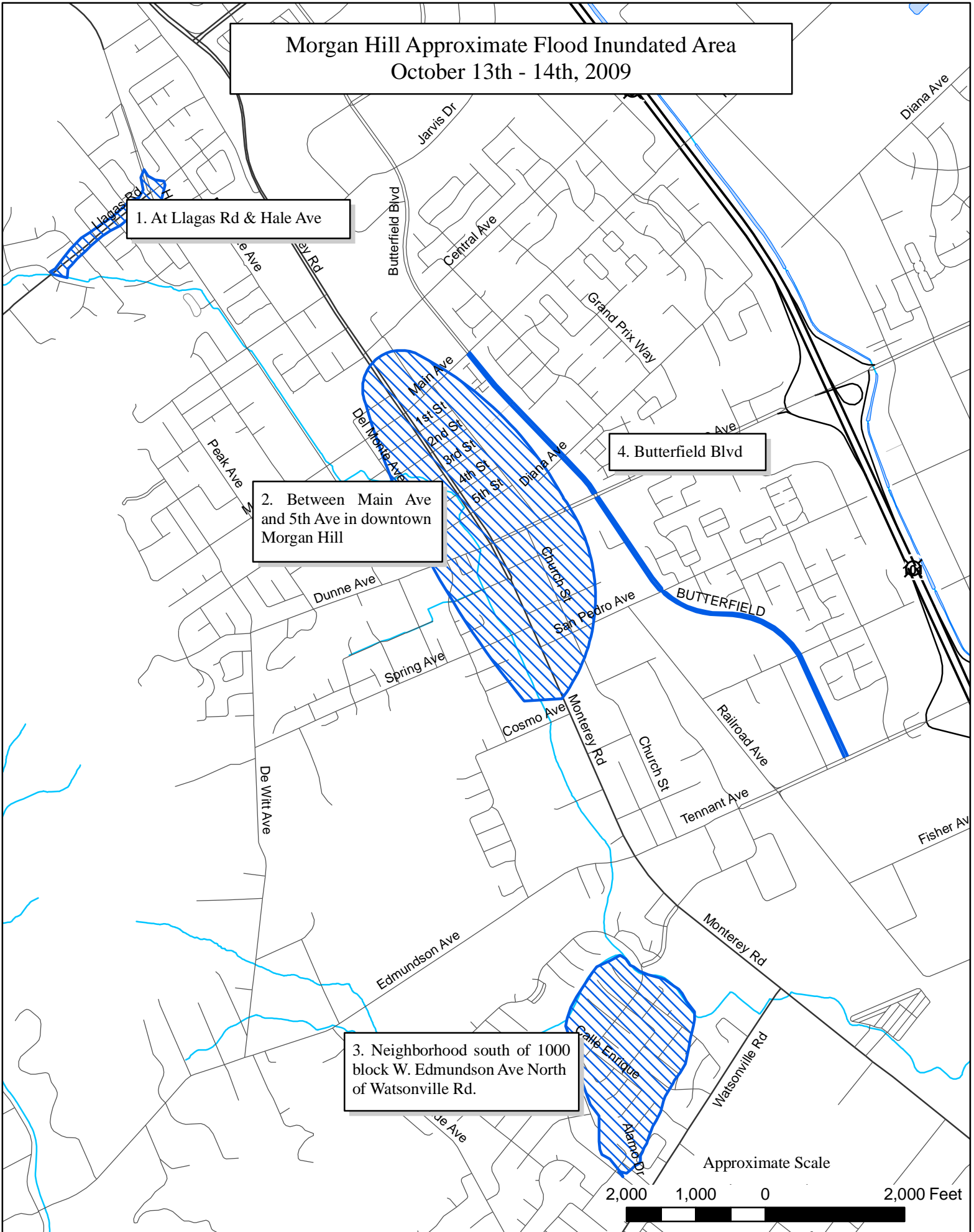
2. Between Main Ave
and 5th Ave in downtown
Morgan Hill

4. Butterfield Blvd

3. Neighborhood south of 1000
block W. Edmundson Ave North
of Watsonville Rd.

Approximate Scale

2,000 1,000 0 2,000 Feet



APPENDIX A

CITY OF MORGAN HILL OCTOBER 13, 2009

FLOODING PHOTOS

At Llagas Road & Hale Avenue



Photo 1: The intersection of Hale and Llagas Road is underwater as a result of the Oct. 13 storm.
Photo by Jason Bushman



Photo 2: An emergency vehicle checks out flooded northwest Morgan Hill. Photo by Jason Bushman

Between Main Avenue and 5th Avenue in downtown Morgan Hill



Photo 3: Little Llagas Creek over topping 5th Street, photo taken facing north. Photo courtesy Anthony Eulo, Program Administrator, Environmental Services Department of the City of Morgan Hill.



Photo 4: Flooding at the intersection of Monterey Road and East Fifth Street. Llagas Creek is shown to the right, facing south. Photo courtesy Anthony Eulo, Program Administrator, Environmental Services Department of the City of Morgan Hill.



Photo 5: Flood waters inundate a city garbage can near Fourth Avenue. Photo by Jorge Briones



Photo 6: Monterey Road at 4th Street resembles a river during the October 13th storm. Photo by Jorge Briones



Photo 7: Flooding around Trail Dust Restaurant in Morgan Hill. Photo courtesy Anthony Eulo, Program Administrator, Environmental Services Department of the City of Morgan Hill.



Photo 8: The parking lot just north of Trail Dust floods as a result of the Oct. 13 storm. Photo by Jorge Briones



Photo 9: Flood waters cover the sidewalk in downtown Morgan Hill. Photo by Jorge Briones



Photo 10: Water laps up against the front of the Granada Theater in downtown Morgan Hill during the Oct. 13th storm. Photo by Jorge Briones



Photo 11: Sand bags help protect the entrance to The Music Tree in downtown Morgan Hill.
Photo by Jorge Briones



Photo 12: Flooding onto sidewalks in downtown Morgan Hill. Photo courtesy Anthony Eulo,
Program Administrator, Environmental Services Department of the City of Morgan Hill.



Photo 13: Flooding outside of Morgan Hill Tobacco, in Morgan Hill, California. Photo courtesy Anthony Eulo, Program Administrator, Environmental Services Department of the City of Morgan Hill.



Photo 14: Flood waters lap against the front of the Morgan Hill Tobacco shop. Photo by Jorge Briones



Photo 15: Flooding in downtown Morgan Hill, California. Photo courtesy Anthony Eulo, Program Administrator, Environmental Services Department of the City of Morgan Hill.



Photo 16: Photo courtesy Anthony Eulo, Program Administrator, Environmental Services Department of the City of Morgan Hill.

**Neighborhood South of 1000 block of West Edmundson Avenue,
North of Watsonville Road**



Photo 17: Waters climb the driveway of an Alamo Drive home Oct. 13. Photo courtesy the Grzan family



Photo 18: Two garbage cans are partially submerged on Alamo Drive in southwest Morgan Hill. Photo courtesy of the Grzan family



Photo 19: Alamo Drive is under water after nearly 7 inches of rain fell on Morgan Hill Oct. 13.
Photo courtesy the Grzan family

Butterfield Boulevard



[MorganHillweather.com](http://www.morganhillweather.com), “Butterfield 20091013 1” from *Flooding* gallery on *MorganHillweather.com*.

Photo 20: Police car closing a portion of Butterfield Blvd near Diana Avenue due to flooding.
<http://www.morganhillweather.com/gallery.html>



[MorganHillweather.com](http://www.morganhillweather.com), “Butterfield 20091013 2” Annotated by *MorganHillweather.com*, from *Flooding* gallery on *MorganHillweather.com*

Photo 21: Annotation showing an overflowing flood canal next to Butterfield Blvd.
<http://www.morganhillweather.com/gallery.html>



[MorganHillweather.com](http://www.morganhillweather.com), "Cory Lane 20091013" from *Flooding* gallery on *MorganHillweather.com*

Photo 22: Flooding occurring on Cory Lane, running adjacent to Butterfield Blvd.
<http://www.morganhillweather.com/gallery.html>



[MorganHillweather.com](http://www.morganhillweather.com), "Canal along Butterfiled 20091013" from *Flooding* gallery on *MorganHillweather.com*

Photo 23: Flooding occurring in flood canal resulting in flooding on Butterfield Blvd.
<http://www.morganhillweather.com/gallery.html>