



Short-Term Sediment Management Strategy *After 2009 Fires*

Regional Sediment Management and
Water Supply Workshop
July 14, 2010

Presented by: Chris Stone, P.E.



Period of Short Term Strategy

We need to consider sediment management for the next several years:

- 2010-11 Water Year*
- 2011-12 Water year
- 2012-13 Water Year
- 2013-14 Water Year

* Water Year is from September 1 to August 31



Short Term Strategy

- Fully utilize existing and developed Flood Control District Sediment Placement Sites (SPS)
- Maximize use of local landfills
- Utilize Flood Control District's existing gravel pit agreements
- Analyze site alternatives to meet anticipated sediment disposal need



Areas Covered by Short Term Strategy

We need to manage sediment from facilities located in several fire areas that are still undergoing recovery:

➤ 2009 Station, Morris Fires

Altadena

Tujunga (City of LA / Angeles Nat'l Forest)

La Canada Flintridge

Acton

La Crescenta

Azusa

Glendale

➤ 2008 Santa Anita, Merek, Sesnon and Sayre Fires

Sierra Madre

Sylmar

Kagel Canyon

Porter Ranch

Lopez Canyon

Browns Canyon

Pacoima Canyon

➤ 2007 Buckweed, Magic and Ranch Fires

Santa Clarita

Castaic

Stevenson Ranch

Val Verde

Anticipated Sediment Volumes

- In Debris Basins thru 2013-14 Storm Season

Chatsworth	51,000 CY	Sierra Madre/Arcadia	58,000 CY
Glendale	941,000 CY	San Gabriel Valley (Other)	15,000 CY
La Canada Flintridge	1,220,000 CY	Sylmar	237,000 CY
La Crescenta	884,000 CY	Tujunga	260,000 CY
Sta Clara River Areas	16,000 CY		

Total: 3,680,000 CY

- In Reservoirs

Big Tujunga	6,900,000 CY	Morris	836,000 CY
Cogswell	3,300,000 CY	Pacoima	2,600,000 CY
Devils Gate	2,100,000 CY		

Total: 15,750,000 CY



Anticipated Deposition Sites

- Existing Flood Control District SPS:

Browns (Chatsworth)

Cogswell (San Gabriel Cyn, ANF)

Dunsmuir (North Glendale)

Manning Pit (Irwindale)

Maple (Big Tujunga Cyn, ANF)

May (Sylmar)

Santa Anita (Arcadia)

Zachau (Tujunga)

- Local Landfills:

Chiquito Canyon (Val Verde)

Scholl Canyon (South Glendale)

Sunshine Canyon (Chatsworth, LA)

- Gravel Pits and Other Sites:

Nuway Gravel Pit (Irwindale)

United Rock Gravel Pit (Irwindale)

Vulcan Gravel Pits (Boulevard & Sheldon - San Fernando, LA)

New Sediment Disposal Sites



Intake Capacities at Existing Sediment Placement Sites

- Assume:
 - 8 CY/Truck during January – March
 - 10 CY/Truck during dry season
 - 65 working days January – March
 - 86 working days (mid-June to mid-Oct) for Devils Gate Reservoir Cleanout
 - 74 working days (July to mid-Oct) for Pacoima Reservoir Cleanout
- Sediment Placement Sites (Jan – March) – **Not to exceed 2009-10 volumes**
 - Dunsmuir SPS: 75 trucks/hr or max of 362,400 CY
 - May SPS: 150 trucks/hr or max of 510,000 CY
 - Zachau SPS: 75 trucks/hr or max of 30,000 CY
- Sediment Placement Sites (Summer/Fall)
 - Do not use Dunsmuir, May, or Zachau SPSs – Need to perform final placement of storm season sediment during dry periods



Intake Capacities at Landfills/Gravel Pits

- Assume:
 - 8 CY/Truck during January – March
 - 10 CY/Truck during dry season
 - 65 working days January – March
 - 86 working days (mid-June to mid-Oct) for Devils Gate Reservoir Cleanout
 - 74 working days (July to mid-Oct) for Pacoima Reservoir Cleanout
- Landfills/Gravel Pits (January – March)
 - Chiquito Landfill: 40 trucks/day => 15,680 CY*
 - Scholl Landfill: 200 trucks/day=> => 78,400 CY*
 - Sunshine Landfill: 40 trucks/day => 15,680 CY*
 - Nuway Gravel Pit: 500 trucks/day => 196,000 CY
 - United Gravel Pit: 10,000 CY/mo, 20,000 CY/yr (per Agreement)
- Landfills/Gravel Pits (Summer/Fall)
 - Nuway Gravel Pit: 500 trucks/day => 344,000 CY (per Agreement)
 - Vulcan Gravel Pits: over 700,000 CY (per Agreement)

*** Assumes landfills can take the same volumes as in 2009-10**



Sediment Disposal Strategy – Chatsworth Area

- Fire Affecting Area: 2008 Season
- Anticipated Sediment Removal Volumes:
 - 2010-11: 22,500 CY
 - 2011-12: 11,300 CY
 - 2012-13: 11,300 CY
 - 2013-14: 5,600 CY

Total: 50,700 CY
- Deposition Sites to be Used:
 - 2010-11 thru 2013-14: Browns SPS (Chatsworth)
- Browns SPS will have only 4,000 CY of remaining capacity by Fall 2014



Sediment Disposal Strategy – Cogswell Reservoir

- Fire Affecting Area: 2009 Station
- Anticipated Sediment Deposition Needs:
 - Summer/Fall 2011: 1,100,000 CY
 - Summer/Fall 2012: 1,100,000 CY
 - Summer/Fall 2013: 1,100,000 CY

Total: 3,300,000 CY
- Deposition Site to be Used: Cogswell SPS (San Gabriel Cyn, ANF)
- Cogswell SPS will be topped off by Fall 2013 or end of cleanout



Sediment Disposal Strategy – Glendale Area

- Fire Affecting Area: 2009 Station
- Anticipated Sediment Removal Volumes :
 - 2010-11: 313,700 CY
 - 2011-12: 313,700 CY
 - 2012-13: 156,900 CY
 - 2013-14: 156,900 CY

Total: 941,200 CY
- Deposition Sites to be Used:
 - 2010-11: Dunsmuir SPS (Glendale), Scholl Landfill (Glendale)*, Sunshine Landfill (Chatsworth)*
 - 2011-12 thru 2013-14: Dunsmuir SPS, Scholl Landfill, Sunshine Landfill, May SPS (Sylmar)
- Dunsmuir SPS will be topped off by Fall 2014

* Daily caps will likely need to be lifted and operating hours extended to accommodate material



Sediment Disposal Strategy – Devils Gate Reservoir

- Fire Affecting Area: 2009 Station
- Anticipated Sediment Removal Volumes:
 - Summer 2011: 700,000 CY
 - Summer 2012: 700,000 CY
 - Summer 2013: 700,000 CY

Total: 2,100,000 CY
- Deposition Sites to be Used: Manning Pit, Nuway Gravel Pit (Irwindale)
- Manning Pit will have approx. 32,000 CY of remaining capacity by Fall 2013



Sediment Disposal Strategy– Big Tujunga Reservoir

- Fire Affecting Area: 2009 Station
- Anticipated Sediment Removal Volumes:
 - Summer/Fall 2011: 1,000,000 CY
 - Summer/Fall 2012: 1,000,000 CY
 - Summer/Fall 2013: 1,000,000 CY
 - Summer/Fall 2014: 1,000,000 CY
 - Summer/Fall 2015: 1,000,000 CY
 - Summer/Fall 2016: 1,000,000 CY
 - Summer/Fall 2017: 900,000 CY

Total: 6,900,000 CY
- Deposition Site to be Used: Maple SPS (Big Tujunga Cyn, ANF)
- Maple SPS will have approx. 2,400,000 CY of remaining capacity by Fall 2017



Sediment Disposal Strategy– La Canada Flintridge

- Fire Affecting Area: 2009 Station
- Anticipated Sediment Removal Volumes:
 - 2010-11: 407,000 CY
 - 2011-12: 407,000 CY
 - 2012-13: 203,500 CY
 - 2013-14: 203,500 CY
 - Total: 1,221,000 CY**
- Deposition Sites to be Used:
 - 2010-11: May SPS (Sylmar), Nuway Gravel Pit (Irwindale), Scholl Landfill (Glendale)*, Sunshine Landfill (Chatsworth)*
 - 2011-12: May SPS, Nuway Gravel Pit, United Rock Gravel Pit (Irwindale), Sunshine Landfill*
 - 2012-13: May SPS, Nuway Gravel Pit
 - 2013-14: Nuway Gravel Pit, Scholl Landfill *

* Daily caps will likely need to be lifted and operating hours extended to accommodate material



Sediment Disposal Strategy – La Crescenta

- Fire Affecting Area: 2009 Station
- Anticipated Sediment Removal Volumes:
 - 2010-11: 294,800 CY
 - 2011-12: 294,800 CY
 - 2012-13: 147,400 CY
 - 2013-14: 147,400 CY
 - Total: 884,400 CY**
- Deposition Sites to be Used:
 - 2010-11: Dunsmuir SPS (Glendale), May SPS (Sylmar), Sunshine Landfill (Chatsworth) *
 - 2011-12: May SPS, Sunshine Landfill *
 - 2012-13: May SPS, Scholl Landfill (Glendale) *
 - 2013-14: May SPS

* Daily caps will likely need to be lifted and operating hours extended to accommodate material



Sediment Disposal Strategy – Sylmar

- Fire Affecting Area: 2008 Sayre
- Anticipated Sediment Removal Volumes:
 - 2010-11: 105,200 CY
 - 2011-12: 52,600 CY
 - 2012-13: 52,600 CY
 - 2013-14: 27,000 CY
 - Total: 237,400 CY**
- Deposition Sites to be Used:
 - 2010-11 thru 2013-14: May SPS (Sylmar)
- May SPS will have approx. 1,740,000 CY of remaining capacity by Fall 2014



Sediment Disposal Strategy Sierra Madre/Arcadia

- Fire Affecting Area: 2008 Santa Anita
- Anticipated Sediment Removal Volumes:
 - 2010-11: 25,800 CY
 - 2011-12: 12,900 CY
 - 2012-13: 12,900 CY
 - 2013-14: 6,000 CY
 - Total: 57,600 CY**
- Deposition Sites to be Used:
 - 2010-11 thru 2013-14: Santa Anita SPS (Arcadia)
- The currently used upper area of Santa Anita SPS will have approx. 32,000 CY of remaining capacity by Fall 2014



Sediment Disposal Strategy – Tujunga

- Fires Affecting Area: 2008 Merek, 2009 Station
- Anticipated Sediment Removal Volumes:
 - 2010-11: 86,500 CY
 - 2011-12: 86,500 CY
 - 2012-13: 43,300 CY
 - 2013-14: 43,300 CY
 - Total: 259,000 CY**
- Deposition Sites to be Used:
 - 2010-11: May SPS (Sylmar)
 - 2011-12: May SPS, Zachau SPS (Tujunga), Sunshine Landfill (Chatsworth)*
 - 2012-13 thru 2013-14: May SPS, Zachau SPS
- Zachau SPS will have approx. 20,000 CY of remaining capacity by Fall 2014

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Sediment Disposal Strategy – Santa Clara River Area

- Fire Affecting Area: 2007 Buckweed, Magic, and Ranch Fires
- Anticipated Sediment Removal Volumes:
 - 2010-11: 5,800 CY
 - 2011-12: 5,800 CY
 - 2012-13: 2,000 CY
 - 2013-14: 2,000 CY
 - Total: 15,600 CY**
- Deposition Sites to be Used:
 - 2010-11: Chiquito Landfill (Val Verde)
 - 2011-12: Chiquito Landfill
 - 2012-13: Chiquito Landfill
 - 2013-14: May SPS (Sylmar)



Sediment Disposal Strategy – Morris Reservoir

- Fire Affecting Area: 2009 Morris
- Anticipated Sediment Removal Volumes:
 - Summer/Fall 2010: **836,000 CY**
- Deposition Site(s) to be Used: Sluice to Santa Fe Dam. Removal from Santa Fe to be Determined‡

‡ Coordinating with Corps. May require new sediment disposal site.



Sediment Disposal Strategy – Pacoima Reservoir

- Fire Affecting Area: 2009 Station
- Anticipated Sediment Removal Volumes:
 - Summer/Fall 2011: 500,000 CY
 - Summer/Fall 2012: 700,000 CY
 - Summer/Fall 2013: 700,000 CY
 - Summer/Fall 2014: 700,000 CY

Total: 2,600,000 CY
- Deposition Site to be Used:
 - Summer/Fall 2011: Vulcan Gravel Pits (San Fernando)
 - Summer/Fall 2012: Vulcan Gravel Pits, Scholl Landfill (Glendale)* , Sunshine Landfill* , and Vulcan Glenoaks Landfill *
 - Summer/Fall 2013: Scholl and Sunshine Landfills*
 - Summer/Fall 2014: Scholl and Sunshine Landfills *

* Daily caps will likely need to be lifted and operating hours extended to accommodate material



Need New Regional Sediment Disposal Site

- Current short term strategy heavily depends on use of existing landfills and their continuing ability to accommodate anticipated sediment disposal needs. This is not a long-term disposal solution for Flood Control District facilities in West LA County region.
- Will continue planning activities associated with developing La Tuna SPS as replacement regional SPS for West LA County
- Will continue exploring other potential disposal opportunities
- Will re-evaluate sediment disposal needs after each storm season
- Will set up follow-up planning meetings as needed with select stakeholders.





Sediment Deposition Site Alternatives *After 2009 Fires*

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Anticipated Sediment Volumes

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Total: 3,680,000 CY

- In Reservoirs

Big Tujunga	6,900,000 CY	Morris	836,000 CY
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Devils Gate	2,100,000 CY		

Total: 15,750,000 CY



Alternatives Considered

- New SPSs
- Landfills in LA County
- Gravel Pits in LA County
- Other Alternative Sites in LA County
- Landfills Outside LA County
- Other Alternative Sites Outside LA County



New SPSs

- Blue Gum SPS (Tujunga, LA)
- Cougar Canyon SPS (Pacoima Reservoir, ANF)
- Hay SPS (La Canada Flintridge)
- La Tuna SPS (La Tuna Cyn, LA)
- Upper Shields SPS (La Crescenta)



Landfills in LA County

- Antelope Valley Landfill
- Lancaster Landfill
- Lopez Cyn Landfill (Sylmar, LA)
- Puente Hills Landfill (Industry)
- Scholl Canyon Landfill (Glendale)
- Sunshine Canyon Landfill (Chatsworth, LA)
- Vulcan Glenoaks Inert Landfill (San Fernando)



Gravel Pits in LA County

- City of Irwindale Pits
- Kincaid Pit (Irwindale)
- Nuway Pit (Irwindale)
- United Rock Pit (Irwindale)
- Vulcan Gravel Pits (Irwindale)
- Vulcan Gravel Pits (San Fernando)



Other Sites in LA County

- Caltrans Templin Hwy Project
- LA County Beach Renourishment Project
- Port of Long Beach Middle Harbor Project



Landfills Outside LA County

- Agua Mansa Inert Landfill (Private) in Rialto
- California Street Landfill (owned by City of Redlands)
- Colton Landfill (owned by County of San Bernardino)
- Holliday Inert Waste Site (Private) in Bloomington
- Mesquite Regional Landfill (owned by LA County Sanitation Districts) in Imperial County
- Mid-Valley Landfill (owned by County of San Bernardino) in Rialto
- Pennsylvania Street Inert Landfill (Private) in San Bernardino
- San Timoteo Landfill (owned by County of San Bernardino) in Redlands

Other Sites Outside LA County

- Streambed Restoration Project in Ventura County



Alternatives Analysis Elements

- **Potential Impacts**
 - Air Quality
 - Traffic
 - Habitat
 - Region's trash capacity at its landfills
- **Proximity to Debris Facilities – Affects how quickly cleanouts can be done**
- **Volume Capacity**
- **Entitlements Needed – Affects readiness of site**
 - Rights of Way
 - Permits/Approvals
- **Other Limitations**
 - Operating hours
 - Acceptability of Flood District material
- **Costs and Cost Savings**
 - Hauling
 - SPS development
 - Habitat mitigation
 - SPS use

Conclusion: Is the site suitable for post-fire use? Does its capacity warrant the costs and impacts?



Alternatives Suitable for Post-Fire Use

- Existing 2008-2009 Fire Area SPSs (Arcadia, Glendale, Sylmar, Tujunga) - Use for debris facilities. Proximity and capacity warrant costs and impacts.
- Existing Cogswell and Maple SPSs (San Gabriel & Big Tujunga Cyns – ANF) - Use for Cogswell and Big Tujunga Reservoir cleanouts. Proximity and capacity warrant costs and impacts.
- La Tuna SPS (New Disposal Site) (La Tuna Cyn – LA) - Suitable for debris facilities and Pacoima Reservoir. Proximity, capacity and cost savings warrant impacts. However, City of LA, CDFG and RWQCB oppose use. Need City's and agencies' cooperation.
- Chiquito Landfill (Existing Facility) (Val Verde) - Use for debris facilities. Proximity, capacity for 2007 Fire area during storm season.
- Scholl Cyn Landfill (Existing Facility) (Glendale) - Use for debris facilities. Proximity, capacity and cost savings during storm season. Capacity not useful for Summer/Fall cleanouts of Pacoima Reservoir.
- Sunshine Cyn Landfill (Exist. Facility) (Chatsworth, LA) - Use for debris facilities. Proximity and capacity warrant cost during storm season. Capacity not useful for Summer/Fall cleanouts of Pacoima Reservoir.
- Nuway Pit (Existing Facility) (Irwindale) - Use for debris facilities and Devils Gate Reservoir. Proximity and capacity warrant cost.
- United Rock Pit (Existing Facility) (Irwindale) - Use for debris facilities. Proximity and capacity warrant cost during storm season. Capacity not available for Summer/Fall cleanouts of Devils Gate Reservoir.
- Vulcan Gravel Pits (San Fernando, LA) - Use for Pacoima Reservoir cleanout. Proximity, capacity and cost savings.

Alternatives Not Suitable for Post-Fire Use

- New Blue Gum/Hay/Upper Shields SPSs (Tujunga, LCFlintridge, La Crescenta) - Proximity and capacity insufficient to warrant costs and impacts.
- New Cougar SPS (Pacoima Cyn – ANF) - Proximity, capacity and cost savings warrant impacts, but USFS approval processes cannot accommodate needed post-fire timeframe. CDFG also opposes.
- Antelope Valley/Lancaster Landfills - Insufficient proximity produces costs and impacts that outweigh capacity benefits. Conflicts w/area's trash capacity preservation goals.
- Lopez Cyn Landfill (Sylmar, LA) - Conflicts w/City's proposed use of closed facility.
- Puente Hills Landfill (City of Industry) - Insufficient proximity produces costs and impacts that outweigh capacity benefits.
- Vulcan Glenoaks Landfill (San Fernando, LA) - On-site requirements render site unavailable for debris facilities. Daily Cap renders capacity insufficient to meet Pacoima Reservoir cleanout needs.
- City of Irwindale/Vulcan/Kincaid Pits (Irwindale) - On-site requirements and distance produces costs and impacts that outweigh facilities' capacity benefits.
- Caltrans Templin Hwy Project (Castaic) - Available capacity low and not assured. Caltrans wants to maximize on-site material for fill. Cost savings only for material from 2007 Fire area.



Alternatives Not Suitable for Post-Fire Use (cont.)

- LA County Beach Renourishment Project (Torrance, Venice) - Project already found and using nearby dredged material. On-site requirements and insufficient proximity produces costs and impacts that outweigh capacity benefits.
- Port of Long Beach Middle Harbor - Project will not accept non-dredged material. Insufficient proximity produces costs and impacts that outweigh capacity benefits.
- Holliday/Pennsylvania St Inert Landfills (San Bernardino County) - Sites will not accept dirt. Insufficient proximity and capacity to warrant costs and meet post-fire needs.
- Agua Mansa Inert Landfill (Rialto) - Insufficient proximity produces costs and impacts that outweigh capacity benefits.
- Colton/Mid-Valley/San Timoteo Landfills (Owned by San Bernardino County) - Sites will not accept material from outside SB County.
- California Street Landfill (Owned by City of Redlands) - Site is open to City-owned trucks only.
- Mesquite Landfill (Imperial Valley) - Owned by LA County Sanitation Districts. Needed transfer station at Puente Hills Landfill no sooner than Fall 2013. Insufficient proximity produces costs and impacts that outweigh capacity benefits.
- Streambed Restoration Project (Santa Clara River, Ventura County) - Tipping fees result in costs that outweigh limited capacity benefits

