
**On-Site Composting Program
at a Tribal Transfer Station**



WORKING WITH A TRIBAL TRANSFER STATION

*Tribal Transfer Station,
opened May 2008*

The Pala Tribal Transfer Station

- Tribal Transfer Station opened in May 2008
- Open to the Public
- Transfer Station Accepts:
 - CRV Materials: Cans/Bottles/Plastic
 - Cardboard / Mixed Paper
 - Scrap Metal / Wood
 - Clothing / Shoes
 - Organic Green Waste to be Mulched/Composted
 - Batteries / E-Waste / HHW / Used Motor Oil / Tires
 - Regular Trash
 - Casino's Recyclables
- Permanent Collection Site for HHW Events, Used Oil & Tire Collections

Baling Recyclables

Baler Being Loaded



Finished Bale



Recyclables

Cardboard & Paper



Aluminum, Glass, & Plastic



Recycling HHW & Used Motor Oil

Hazardous Waste Cabinets

Used Motor Oil Collection Site



Recycling E-Waste & Tires

E-Waste Collection



Tire Collection Event



2009 Recycling Totals

• 1435
gallons

HHW



• 6.4 tons

E-Waste



• 8297
batteries

Batteries



• 675
gallons

Used Motor Oil



• 1921 tires

Tires



• 1377
yards

Green Organic
Waste



• 119 tons

Aluminum,
Glass, & Plastic



• 262 tons

Cardboard,
Paper



• 95 tons

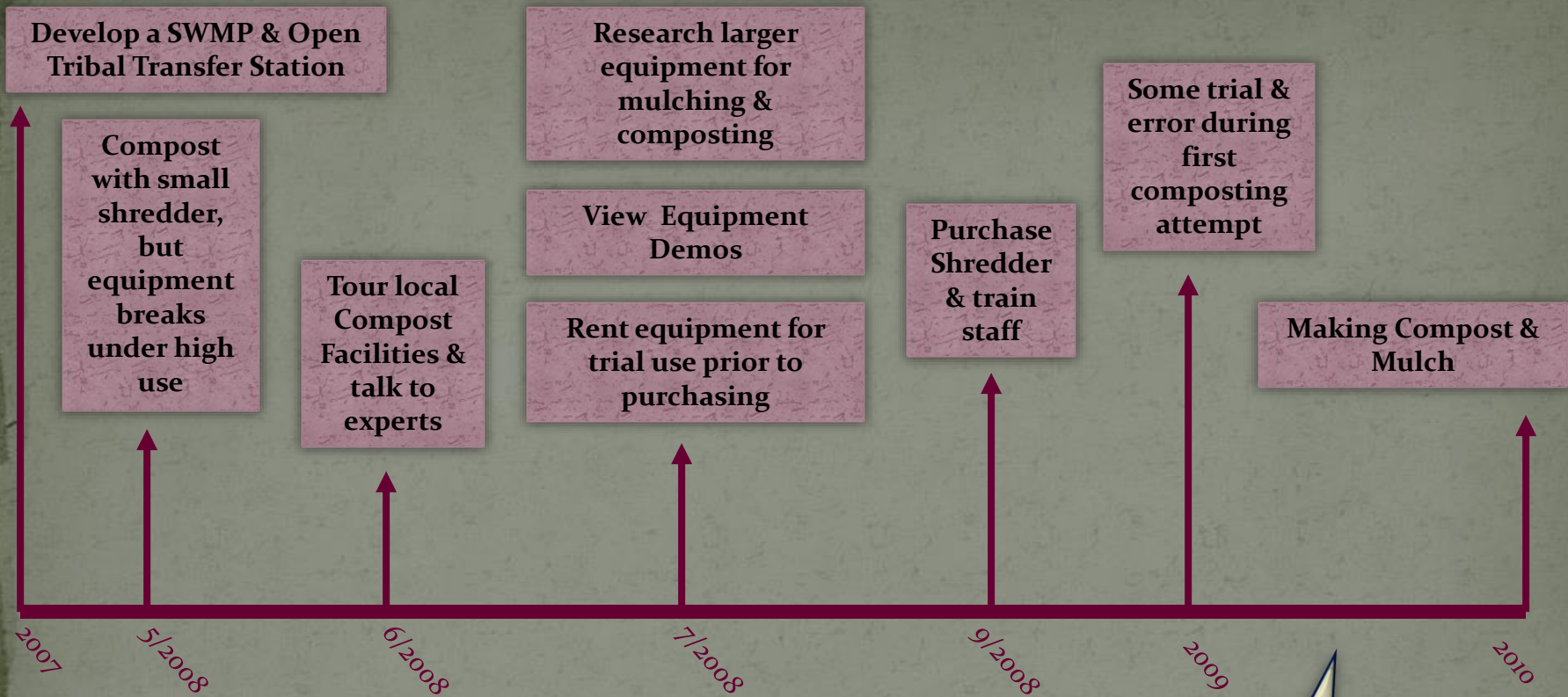
Metal





STARTING A TRIBAL MULCH & COMPOST PROGRAM

*Loading the Shredder at the
Tribal Transfer Station*



Identify any problems & goals



Research all options & identify the best fit for your facility



- **Develop a Solid Waste Management Plan (2005)**
 - Identify Green Waste Disposal Goal
- **Open a Tribal Transfer Station (2008)**
 - Transfer Station required green waste disposal every 3-4 months
- **Identify Problems:** only had 1 small chipper to handle green waste
 - Chipper could not handle the load; continually plugged up & broke
 - Expensive to repair; not cost effective (repair & man hours)
 - Designed for tree branches, not a mix of brush/trees/etc.
- **Identify Options** open to us
 - Haul Green Waste Offsite
 - *Expensive option*
 - Burn Green Waste
 - *Air pollution is toxic when 'other' items get mixed in (ie: plastic or trash)*
 - Rent a large chipper every quarter
 - *Had the same issues as the small chipper*
 - *Not cost effective*
 - **Purchase New Shredder Equipment**

**IDENTIFY
GOALS,
PROBLEMS,
&
OTHER
OPTIONS**

- Tour local Composting Facilities (Large Volume)
 - Miramar Landfill
 - Oceanside's Green Waste Facility
 - Consulting Firm (specializing in green waste disposal)
- Things to Explore/Ask
 - Your current needs vs. future needs/growth
 - Type of equipment vs. volume of green waste
 - Equipment pros/cons
 - Costs associated with repairs, training, etc.
 - Maintenance & Training to run equipment
 - Equipment's reputation (ie: issues, quirks?)

**RESEARCH:
OTHER
FACILITIES**

- High Speed Tub Grinders

- Cost: \$300,000 – \$1,000,000
- Suited for high volume municipal facilities
- Requires special operator/training
- High maintenance (jams easily; pricey repairs)
- Shoots out pieces of debris sporadically

- Low Speed, High Torque Shredders

- Cost: \$300,000 - \$455,000
- Suited for low volume facilities
- Easy operation-no specialized training
- Caterpillar mechanic can do repairs
- Low maintenance

**RESEARCH:
TYPES
OF
EQUIPMENT**

- Obtain Proposals
 - Try different companies/equipment
 - Try demo/used equipment
- View a Demo of Equipment
- Research Renting vs. Buying
 - Rent Costs: \$36,000 - \$46,000 per year
 - *Only covers 4 'mulch' days per year*
 - Purchase: \$320,000 one time fee
 - Can mulch anytime, all year round

**RESEARCH:
AVAILABLE
OPTIONS**

Shredder Purchased by Tribe

Purchased by the
Tribe 09/2008

\$320,000

Used Model
(Demo)
(had 10 hours on it)

Warranty
~ 1 year

Included 2
screens
(100 mm & 250 mm)

3-day training

**Komptech
CRAMBO
3400
Diesel**



Other Tribal Equipment Used

Water Truck (*waters mulch pile*)



Bulldozer (*turns over windrows*)





PALA'S MULCH & COMPOST PROCESS

Mulching Equipment

- Local Contacts around San Diego County
- USEPA Education/Outreach Resources

- Tribal Consultant
 - Helps advise on equipment/compost process
 - Lends us large/specialized equipment
 - Worked on side project to make fine mulch

- Tribal Services
 - Purchased a Water Truck & a Front Loader
 - Staff time to load shredder, water/turn piles

- Transfer Station Staff
 - Oversees loading of green waste

**IDENTIFY
ALL
RESOURCES**

- **Transfer Station Staff**
 - Inspect all incoming green waste
 - Removes any debris, rocks, plastic, or trash
 - Helps load green waste into shredder
 - Daily temperature readings of compost
 - Cleans equipment weekly

- **Tribal Services Staff**
 - Loads all green waste with crane/backhoe
 - Water compost piles
 - Turn over all windrows

- **Tribal Fleet Department**
 - Equipment maintenance

**RESPONSIBLE
TRIBAL
DEPARTMENTS**

Inspect Incoming Green Waste

Inspect for trash mixed in

Separate out large pieces



Loading the Shredder

Loading Green Waste in Shredder



Initial Mulch



Developing the Compost

Watering Mulch Piles



Turning over Windrows



Finished Product

Mulch Close Up



Compost Piles



- 3 day training for all staff
- On-site Composting SOP Developed
- Tribal Consultant
 - Helps troubleshoots problems
 - Helps rent/operate additional equipment to make a finer mulch

TRAINING



**LESSONS
LEARNED
&
FUTURE
PATH**

Finished Mulch Pile

- Separating the 'Other items' out of Green Waste
 - Educating Tribal Departments
 - Staff oversees delivery of all green waste loads
- Outreach to Community
 - Pala advertises to the local community with flyers, posters, and word of mouth.
- Home Composting Pilot Program
 - Pala's Environmental Department is conducting a Home Compost Pilot Program. They have purchased 8 different home composters, and have been testing them out. In summer 2010, they will hold a compost workshop for the community, which outlines the different types of composters available, any issues/troubleshooting they should know about, and why we should compost.

**LESSONS
LEARNED**

- Working with Tribal Staff on following SOP's
 - Outline responsibilities for each department

- Had to replace a screen on the shredder
 - Teeth on shredder wear down FAST if rocks/debris are mixed in with green waste
 - Must pay close attention to the material that gets loaded into shredder

**ISSUES
&
OBSTACLES**

- **Community Outreach**
 - 2009 Survey
 - Only 22% of the community composts now
 - 33% would be interested in composting (home or at transfer station)
 - Pilot Home Composting Program
 - Community Composting Workshops
 - Pilot Community Garden Program
 - Increase awareness in composting, water conservation, and native drought-resistant plants
- **Begin a Pilot Food Waste Composting Program**
 - GAP FY2010/2012 Workplan
 - The Tribe will begin composting food waste from the community and the casino operations, as part of our regular Tribal Green Waste Disposal Program.
- **Update Tribe's Solid Waste Management Plan**
- **Market our own Compost Brand**
 - If we wanted to increase our volume, we could look into dyeing, bagging and marketing our own compost brand.

**FUTURE
GOALS**

• Fine Mulch Side Project

- The Tribe worked with a Tribal Consultant to make a very fine mulch. The Tribal Consultant lent the Tribe some of his equipment, and helped walk our staff through the process. The Transfer Station staff experimented & produced some high quality mulch.



**ADDITIONAL
SIDE
PROJECTS**

BioCycle West Coast Conference: Composting, Organics Recycling & Renewable Energy
On-Site Composting Program at a Tribal Transfer Station
April 12, 2010

FOR MORE INFORMATION, CONTACT:

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