

BUILDING A WORLD OF DIFFERENCE

QUANTIFICATION OF INSTITUTIONAL MEASURES FOR TRASH TMDL COMPLIANCE

AMANDA BURNS



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AGENDA

Background

Quantification Results

Characterization Results

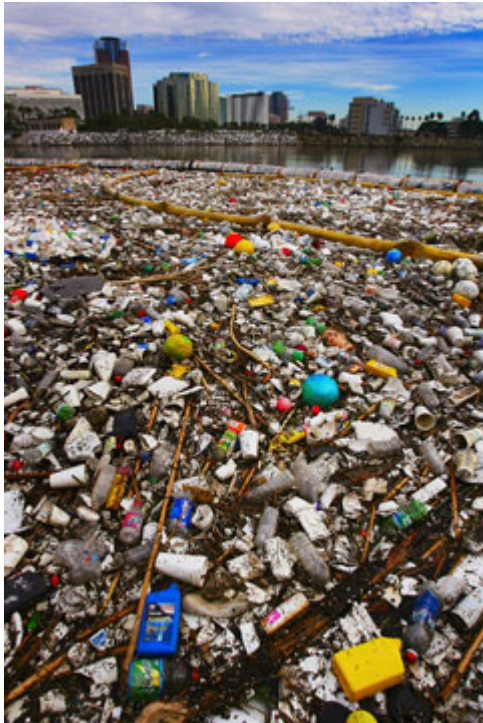
Looking Forward



BACKGROUND



TRASH TMDL TIMELINE

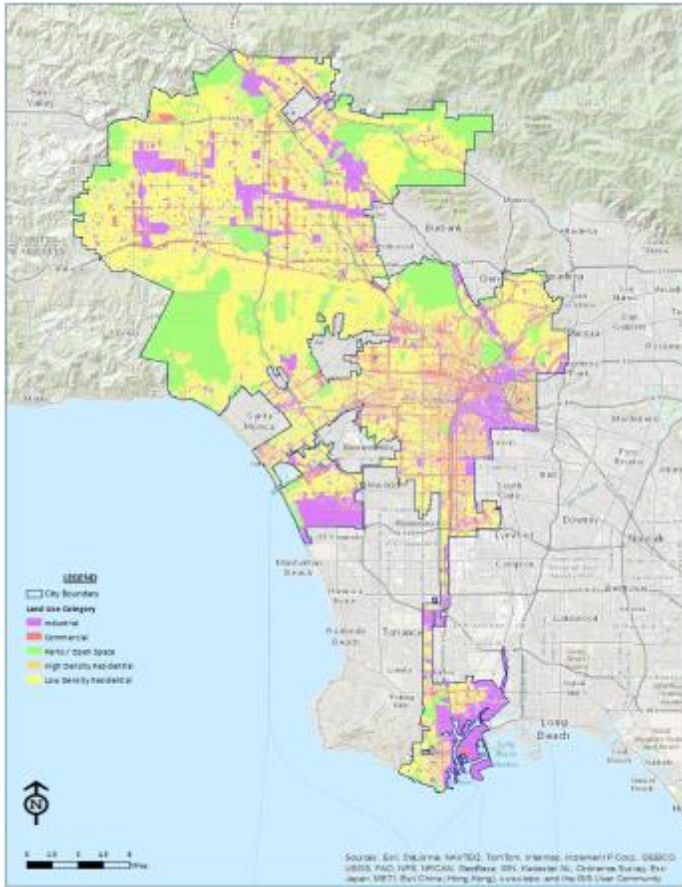


- Trash TMDL adopted by Regional Board in September 2001
- Nation's first to regulate trash as a pollutant
- Decrease Wasteload Allocation each year and demonstrate compliance by 2015
- City of Los Angeles, in collaboration with the Regional Board, developed a two-pronged approach

TWO PRONGED APPROACH

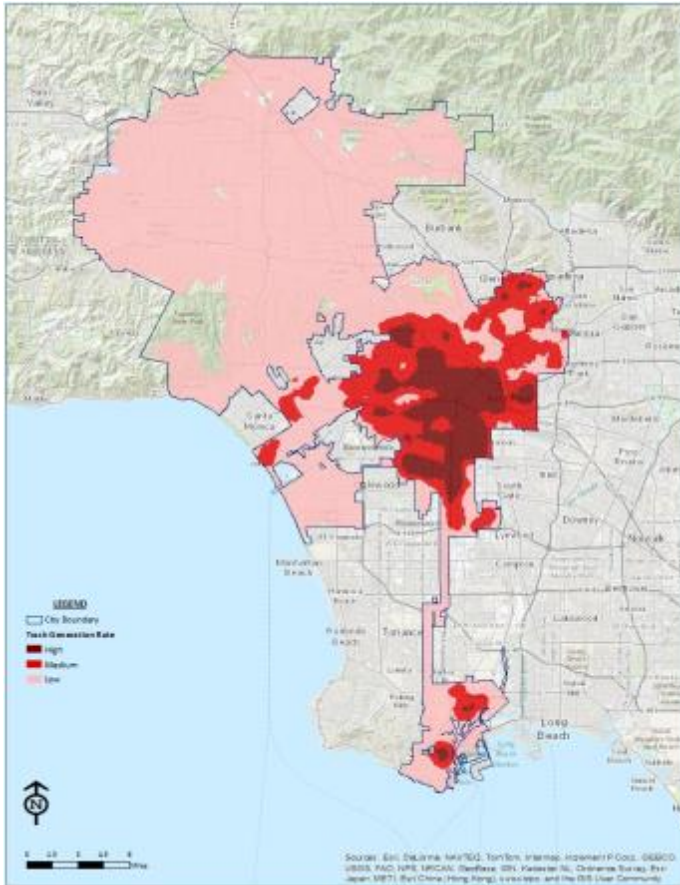
- Implement a combination of structural and institutional measures to demonstrate compliance
- Structural Measures Examples
 - Full Capture Systems
 - Partial Capture Systems
- Institutional Measures Examples

BASELINE WASTELOAD ALLOCATION



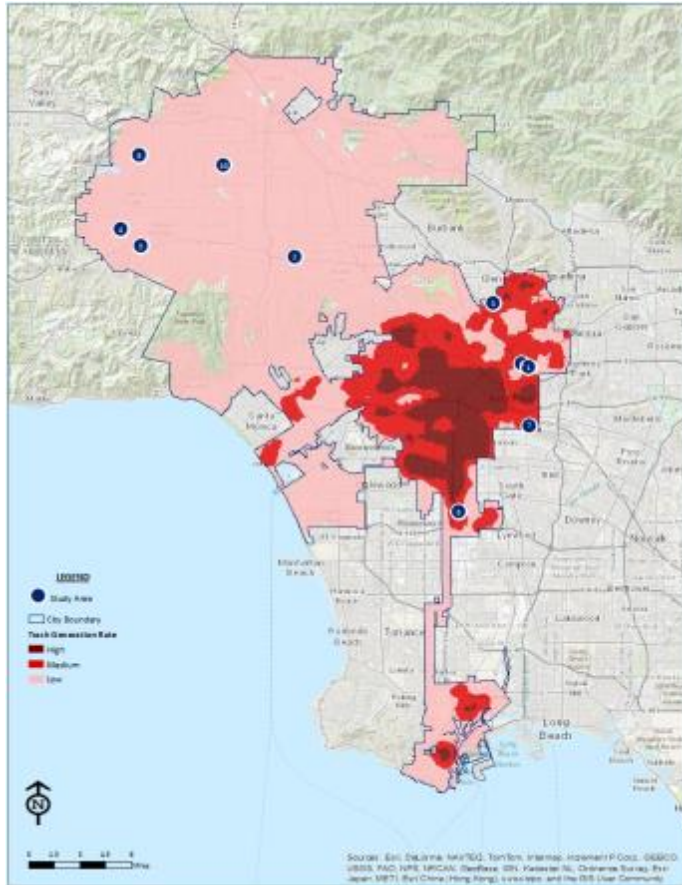
- Compliance Demonstrated by Reduction in Wasteload Allocation
- Baseline Wasteload Allocation calculated per Land Use Type
 - Open Space
 - Low Density Residential
 - Commercial
 - Industrial
 - High Density Residential

STRUCTURAL MEASURES



- Study defined areas of City by Litter Generation Rate:
 - High
 - Medium
 - Low
- Full Capture systems installed in high trash generating areas
- Partial Capture systems installed in medium and low trash generating areas

QUANTIFICATION OF INSTITUTIONAL MEASURES



- Focus on medium and low trash generating areas
- Summer months characterized by high outdoor activity
- Calculate wasteload allocation using land use based LGR
- Compare to Baseline results

QUANTIFICATION RESULTS



CALCULATION OF LGR PER PROJECT SITE

- Average volume collected in 2012 and 2013 provided basis for LGR per Project Site

SITE	LAND USE	AREA (AC)	LITTER (GAL)			LGR (GAL/AC)
			2012	2013	AVERAGE	
1	Open Space	14.1	28.1	30.8	29.4	2.09
2	Open Space	16.2	47.7	119.5	83.6	5.16
3	Low Density Residential	12.4	48.1	32.7	40.4	3.26
4	Low Density Residential	18.2	10.4	8.2	9.3	0.51
5	Commercial	16.5	27.8	62.8	45.3	2.74
6	Commercial	18.6	737.3	833.1	785.2	42.22
7	Industrial	15.6	374.0	458.5	416.3	26.68
8	Industrial	18.1	29.3	57.4	43.3	2.39
9	High Density Residential	13.0	88.1	81.3	84.7	6.52
10	High Density Residential	15.6	23.6	13.2	18.4	1.18

CALCULATION OF LGR PER LAND USE TYPE

- Average LGR per Medium and Low Trash Generating Areas

SITE	LAND USE	TRASH GENERATION RATE	LGR (GAL/AC)	LGR PER LAND USE (GAL/AC)
1	Open Space	Medium	2.09	3.62
2	Open Space	Low	5.16	
3	Low Density Residential	Medium	3.26	1.88
4	Low Density Residential	Low	0.51	
5	Commercial	Low	2.74	22.48
6	Commercial	Medium	42.22	
7	Industrial	Medium	26.68	14.54
8	Industrial	Low	2.39	
9	High Density Residential	Medium	6.52	3.85
10	High Density Residential	Low	1.18	



WASTELOAD ALLOCATION AND BASELINE COMPARISON

- Example Calc for Open Space Land Use Types:

Open Space LGR × Area of Open Space = WLA per Land Use

DESCRIPTION	UNIT	HDSFR	LDSFR	COMMERCIAL	INDUSTRIAL	PUBLIC FACILITIES	EDUCATIONAL INSTITUTIONS	MILITARY	TRANSPORTATION	MIXED URBAN	OPEN SPACE	AGRICULTURE	WATER	RECREATION	TOTAL
Los Angeles – Land Use Area*	mi ²	146.95	6.86	17.04	16.81	8.83	7.72	0.13	11.66	2.16	45.85	2.61	5.11	9.77	281.5
Los Angeles – Land Use Area	ac	94,048	4,390	10,906	10,758	5,651	4,941	83	7,462	1,382	29,344	1,670	3,270	6,253	180,158
Los Angeles – Baseline Report WLA**	gal	523,851	13,302	161,072	164,951	86,603	72,974	0	114,426	21,170	170,494	9,692	0	36,310	1,374,845
Los Angeles – Study Results	gal	361,849	8,270	245,166	156,412	82,160	71,838	0	108,491	20,093	106,310	6,050	0	22,654	1,189,293

* Source: TMDL Baseline Report, Appendix I

** Source: TMDL Baseline Report, Appendix II

Percent Reduction as Measured by this Study = $1 - 1,189,293 / 1,374,845 = \mathbf{13.5\%}$



OVERALL RESULTS

Percent Reduction as Measured by this Study = $1 - 1,189,293 / 1,374,845 = \mathbf{13.5\%}$

- Study measured the reduction in trash prior to reaching structural BMPs
- Direct measurement of institutional control effectiveness

CHARACTERIZATION RESULTS



PURPOSE

- Describe City's trash generating behavior
- Identify and monitor trends
- Target specific trash types in next generation BMPs (similar to "Plastic Bag Ban")



FIELD CREW TRAINING

TRASH CHARACTERIZATION

Collected trash items will be sorted into the following 15 categories.

Food Service Packaging
Paper food service packaging such as fast food clamshells and cups.




****Note:** This category does **NOT** include Styrofoam or plastic containers. These materials will be sorted into other categories.


Snack and Candy Packaging
Candy/gum wrappers, chip bags, cardboard trays, etc. from snacks or candy items.



Bottles and Cans
Includes most aluminum, glass, plastic, and bi-metal beverage containers. Items must have California Redemption Value (or CRV).



Non-CRV Containers
Includes other beverage containers that have no CRV such as milk cartons, wine bottles, and infant formula containers.

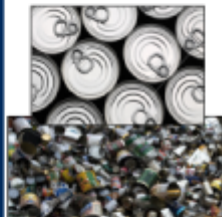



When parking your vehicle at the job site, make sure all traffic safety conditions are met (safety cones, arrow board trailer, etc.).

Molded Plastic
Includes non-beverage plastic containers such as clamshells, fast food packaging, and fruit baskets.



Metal
Includes non-beverage metal containers, such as canned food containers or paint cans.



Glass
Includes non-beverage glass containers such as jars, ceramic pots, etc.




Cigarette Butts



Polystyrene
Includes food and drink containers made of Styrofoam such as clamshells and cups.



Paper
Includes all forms of paper litter such as paper bags, newspapers, cardboard, flyers, advertisements, coupons, etc.




Plastic Film, Non-Grocery Bags
Examples: saran wrap, sandwich bags, etc.



Plastic Film, Single-Use Grocery Bags



Heavier Plastic Film, Tarps



Clothes and Fabric
Includes clothing items, shoes, rags, hair accessories etc.



Non-Man-Made Waste
Includes yard waste, dumped grass clippings, discarded mulch, etc.



Other
Examples: ropes, twine, unidentified litter, tires, yard waste, wooden planks, furniture, car parts, etc.

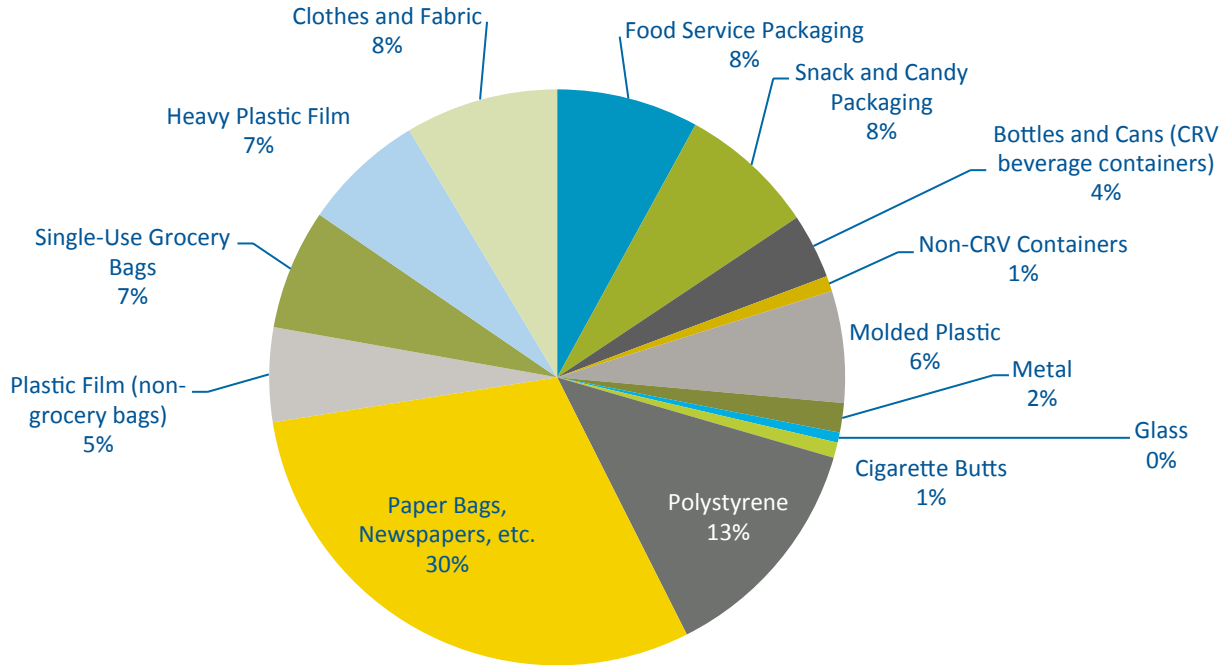



Make sure you are wearing your gloves when picking up ALL items. Watch out for broken glass and sharp objects.

WEAR HAND PROTECTION

OVERALL RESULTS

- Paper products and Polystyrene made up largest overall volume



LOOKING FORWARD



OPEN SPACE LAND USE

- **Observation:**

- Lots of food and drink packaging trash
- More trash collected at parks with recreational facilities
- Greater percent of Polystyrene than other land uses

- **Suggested Management Approach:**

- Increased permit cost or environmental fee to use parks for organized gatherings
- Permits or other regulations on food trucks



LOW DENSITY RESIDENTIAL LAND USE

- **Observation:**
 - Very little trash found at these sites
- **Suggested Management Approach:**
 - Continue implemented institutional control programs



COMMERCIAL LAND USE

- **Observation:**

- Generated highest volume of trash
- Alleys may contribute to high trash generation
- High foot traffic and frequent food truck activity

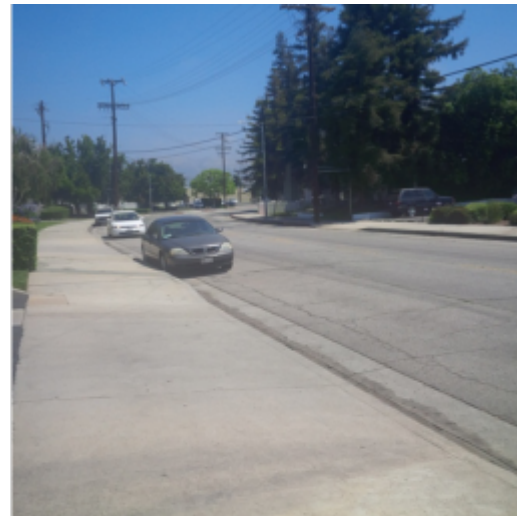
- **Suggested Management Approach:**

- Develop collection or educational program to target disposal in alleyways
- Permits or other regulations on food trucks



INDUSTRIAL LAND USE

- **Observation:**
 - Frequent food truck activity
 - Nearby manufacturing operations
- **Suggested Management Approach:**
 - Permits or other regulations on food trucks
 - Enhanced enforcement for illegal, incidental disposal



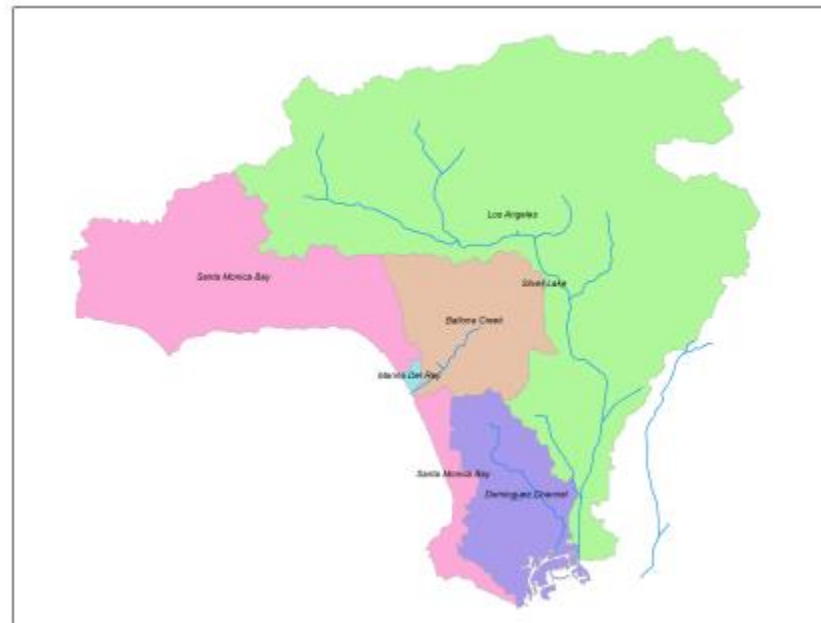
HIGH DENSITY RESIDENTIAL LAND USE

- **Observation:**
 - Over half of City's land use area
 - Less trash collected in site without sidewalks
- **Suggested Management Approach:**
 - Focus educational outreach in higher foot traffic areas



REGIONAL IMPLEMENTATION PLAN

- Suggested Management Approaches will be incorporated into Enhanced Watershed Management Plans as customized minimum control measures



STATEWIDE TRASH AMENDMENTS

- **Central element of the proposed Trash Amendments is a land use based compliance approach to target high trash generating areas.**
- **Track 1**
 - Install network of full capture systems in storm drains in priority land uses
 - No monitoring required
- **Track 2**
 - Implement any combination of controls (structural and/or institutional), as long as they achieve same level of performance as Track 1
 - Monitoring required

ADAPTABILITY

- Track 1 vs. Track 2 Feasibility
- Monitoring Approach
- Establish Baseline



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