SAVE MONEY ON SOLID WASTE: UNDERSTANDING FULL COSTS AND FUNDING SOURCES

MORNING SESSION

Sponsored by:
CT DEEP
US EPA Region 1

Presented by:

DSM
Environmental
Services
GAA

WORKSHOP OBJECTIVES

- Help public officials and solid waste program managers implement effective unit-based pricing (UBP) programs
 - Overcome barriers to implementation
 - Develop cost effective programs
- Inform municipalities about the availability of technical assistance to move forward with UBP
 - Grants available through CT DEEP for implementation costs
 - Technical assistance available through CT DEEP contract with DSM Environmental/GAA

INTRODUCTIONS

- Name
- Municipality/Organization
- Position
- One sentence on why you are attending

TODAY'S AGENDA

9:15 Introduction to Unit-Based Pricing (UBP) 9:35 **UBP Logistics for Different Collection Systems** 10:30 **Networking Break** 10:45 Overcoming Implementation Challenges **Group Brainstorm and Activity** 11:30 Gaining Buy-In from Public Officials 12:00 Overview of Afternoon Session 12:15 Lunch 1:00 - 3:00 Mechanics of Cost Accounting, Allocations, and Program Budgeting

DSM EXPERIENCE

- DSM incorporated in 1988 to serve state and local government.
- DSM concentrates on economic and environmental accounting for public and private sector clients throughout the US and internationally.
 - Large Cities Boston, New York, Columbus, Hartford, Knoxville
 - Smaller Towns Oxford County Solid Waste (Maine), Hartford, VT
 - Across both ponds 16 countries around the globe
- Specialties include:
 - Refuse and recycling collection system analysis to reduce costs.
 - Program budgeting and user fee system development, including Unit Based Pricing program development and implementation assistance.
- GAA, incorporated in 1974, is a research and consulting firm specializing in solid waste management issues.
 - Consults to state and local governments as well as to the private sector.
 - Surveys recycling collection and processing programs throughout US

DSM ENVIRONMENTAL SERVICES, INC.

INTRODUCTION TO UNIT-BASED PRICING



Save Money on Solid Waste: Understanding Full Costs and Funding Sources

UNIT-BASED PRICING

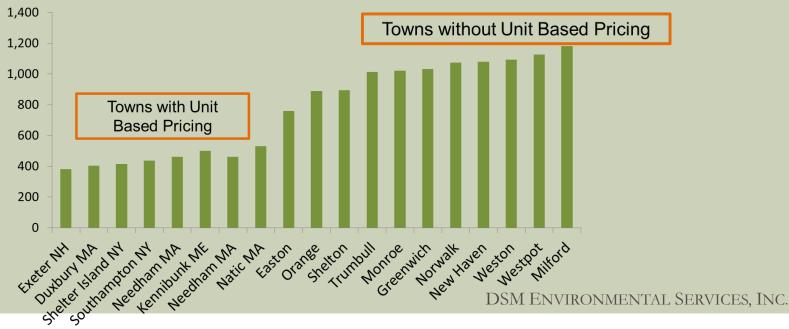
- Terminology:
 - For some, Pay-As-You-Throw (PAYT) is a four letter word. Alternatives:
 - Unit-Based Pricing
 - Variable Rate Pricing
 - Volume or User Based Pricing
 - Re-Branded in some states as Save Money And Reduce Trash (SMART)
 - We will be using "Unit-Based Pricing" (UBP)
- Why Implement UBP?
 - Remove costs of solid waste and recycling from municipal budgets and property taxes
 - Charge in a more equitable way for waste collection and disposal
 - Increase recycling and yard waste diversion
 - Encourage waste reduction and reuse

BENEFITS OF UBP

- Reduction in waste set-out (and associated cost savings) from 10% to as much as 55-60% reported (depending on where you are starting from)
- Reductions may occur from a variety of reasons, including:
 - More recycling and yard waste diversion
 - Primary reason CT DEEP is supporting this effort
 - More donation of items (furniture, etc.)
 - Reductions in illegal use of current program (users not on service leaving items at curb)
 - Limitations on what can be set-out (C&D waste, limits on bulky waste)
 - Backyard composting
 - Other forms of waste and materials diversion

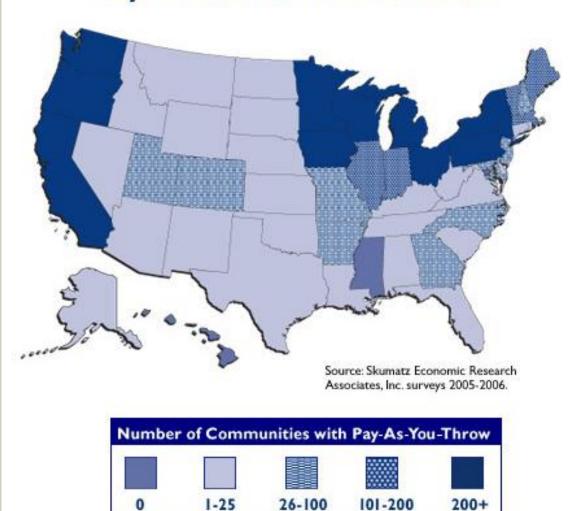
SAVINGS AND REDUCTIONS

- Annual Cost Savings (Source: US EPA)
 - Wilmington, NC (75,000 pop.) \$40,000 savings
 - Littleton, NH (5,800 pop.) \$40,000 in extra funds
 - Gainesville, FL (96,000) \$186,200 savings
 - San Jose, CA (850,000 pop.) \$4 million
- Annual Per Capita Disposal (Source: CT DEEP 2008)



HOW WIDESPREAD IS UBP?

Pay-As-You-Throw at a Glance



MAJOR ELEMENTS IN APPROACHING UBP: COLLECTION

- Type of waste: residential, commercial, C&D
- Who collects: municipality, contracted hauler(s), subscription, self-haul, combination
- What is collected: MSW, recyclables, green waste/organics, bulky waste
- Types of containers: bags, carts, bins, cans, combination
- Mode of collection: manual, automated, semi-automated, combination
- How is collection paid for: local taxes, fees, material sales, grants, combination

MAJOR ELEMENTS IN APPROACHING UBP: DISPOSAL

- Category of materials: MSW, recyclables, bulky waste, green waste/organics
- Generator of waste: residential, commercial
- Disposal options: transfer station, WTE plant, processing plant
- Who owns disposal site: locality, another public entity, private firm
- Who pays for disposal: locality, private hauler, a third party
- How are disposal costs covered: local taxes, fees, material sales, part of subscription collection charge, combination

UBP PROGRAM TYPES AND KEY ISSUES

- Common Program Types
 - Carts (64-gallon, 45-gallon, 32-gallon, or 20-gallon)
 - Bags (32-gallon, 15-gallon)
 - First container free (32 can or equivalent)
 - Bulky waste unit charges
 - Curbside or drop-off collection
- Key Issues to Address:
 - Minimum volume
 - 64 gallon and weekly refuse collection is enough for an average household there is little incentive to reduce if the first 64 gallons is free, or the minimum cart size
 - Revenue goals
 - Do you just want to raise disposal fees, or also cover collection costs for refuse, and for recycling?
 - Role of private refuse collection (subscription service)
 - Availability of "free" municipal transfer stations

CARTS

- Model Programs West Coast Cities (Seattle, San Francisco, San Jose)
 - Garbage carts available in 20-, 32-, 64-, and 96-gallon sizes
 - Monthly garbage rate is based on the garbage cart size with significant increase in monthly rate as refuse cart size increases.
 - Provisions for overages stickers, PAYT bags
 - Recycling carts available in 32-, 64-, and 96-gallon sizes
 - No additional fee for recycling cart, regardless of size.
 - Yard trimmings carts available in 32-, 64-, and 96-gallon
 - Allowed or required to place food waste in YW cart













CLOSER TO HOME

- Middletown, RI
 - 64 gallon cart for refuse provided at no cost by municipality
 - But must place all refuse in PAYT bags inside cart
 - PAYT bags can be purchased at most retail locations in Middletown
 - 64 gallon cart for recycling
 - Yard waste collected in yard waste bags on designated weeks
- Hybrid System
 - Flat fee billed to all households who choose to be on system (seasonal residents can pay for ½ year)
 - PAYT bags at \$2.50 per bag

BAGS

- All refuse must be in Town printed bag
- Bags can be ordered in 32, 15 or even 8 gallon:
 - Typically sold in sleeves of 5 or 10 at most area retailers who carry them at no extra cost
- Bag prices might run from \$1 as much as \$4+ per bag depending on costs covered





BAG EXAMPLES

Concord, NH

- 32 gallon bags cost \$2 per bag and can be purchased at most retail locations
- 15 gallon bags cost \$1 per bag
- Bags are supplied to retailers by City through bag contractor who deals directly with retailers and pays City monthly for all bags sold
- City contracts with private hauler to collect refuse in PAYT bags and recyclables

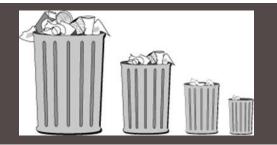
Worcester, MA

- Bags priced at 75 cents (small) and \$1.50 (32 gallon)
- Same bag supplier/retail distribution arrangement as Concord
- City collects refuse, private company collects recycling under contract to City
- Private contractor also collects bulky waste by appointment and payment to contractor by household under fee per item established by contract with City

Stonington, CT

- Bags are sold in two sizes: 33 (large) & 15 (small) gallons.
- Costs for 33-gal. bag \$1.25 and 15-gal. bag \$0.75
- Available at Town Hall and most retail locations

MINIMUM SERVICE



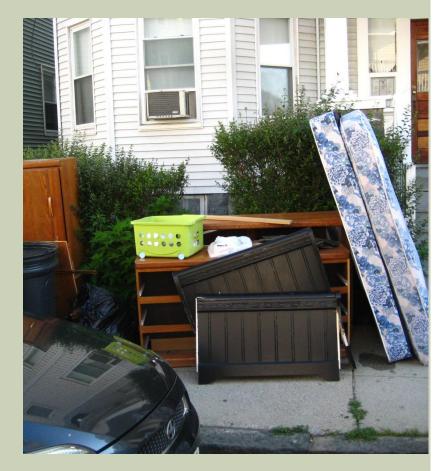
- One standard can free (up to 35 gallon)
- Town provides annual decal which must be displayed on can for collection
 - Example: Topsfield, MA
 - Price covered in property tax
 - Stickers purchased for any additional bags
- Stickers can also be used instead of bags for every bag
 - Stickers harder to see by collection vehicle, and harder to enforce for load checks
- Households may get up to 32 gallons of refuse collected free each week - billed as utility
 - Example: Brockton, MA
 - City contracts with private company to collect refuse and recycling
 - Households purchase PAYT bags directly from contractor for additional refuse – if extra refuse not in PAYT bag contractor does not collect and notifies City which enforces requirement

ONE ISSUE WITH MINIMUM SERVICE - HOW MANY HOUSEHOLDS?



BULKY WASTE

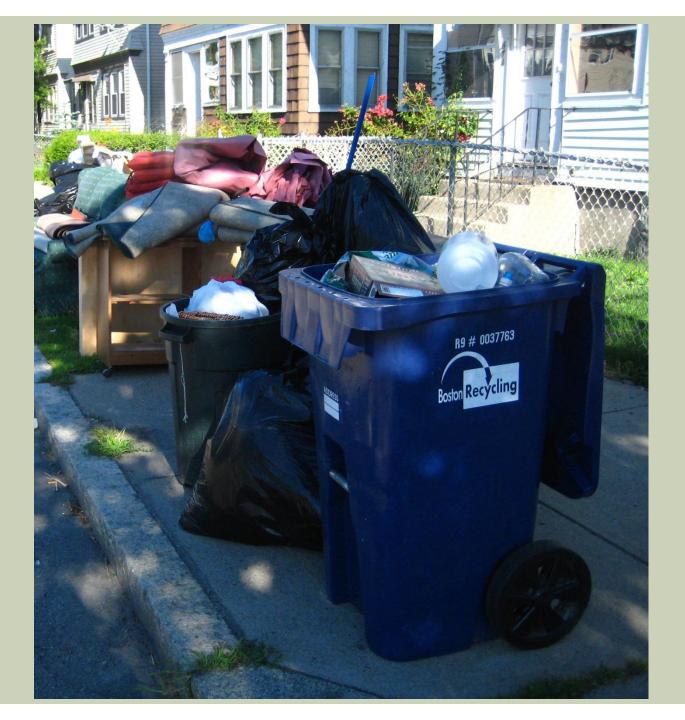
- Could be place to start for some municipalities, particularly those with unlimited bulky waste
- Charge by unit, and require call in for pickup
 - Purchase sticker per unit; or
 - Contractor bills customer directly.
- Boston, MA and Hartford, CT are considering implementation of this system to reduce taxpayer costs for bulky wastes



Item	Price Per Item	Minnesota Solid Waste Tax (9.75%)	Hennepin County Environmental Fee (9%)	Total Cost Per Item
Air Compressor	\$20.00	\$1.95	\$1.80	\$23.75
Antenna (Large Outdoor)	\$20.00	\$1.95	\$1.80	\$23.75
Appliance	\$20.00	\$0.00	\$0.00	\$20.00
Appliance - Air Conditioner	\$27.00	\$0.00	\$0.00	\$27.00
Aquarium (Up to 50 gallons)	\$5.00	\$0.48	\$0.45	\$5.93
Aquarium (More than 50 gallons)	\$10.00	\$0.98	\$0.90	\$11.88
Aquarium with Stand (Up to 50 gallons)	\$15.00	\$1.46	\$1.35	\$17.81
Aquarium with Stand (More than 50 gallons)	\$25.00	\$2.43	\$2.25	\$29.68
Artificial Tree	\$7.50	\$0.73	\$0.67	\$8.90
Awning (Large)	\$15.00	\$1.46	\$1.35	\$17.81
Awning (Small)	\$7.50	\$0.73	\$0.67	\$8.90
Basketball Hoop/Backboard	\$10.00	\$0.98	\$0.90	\$11.88
Basketball Hoop with Pole & Stand (Portable)	\$25.00	\$2.43	\$2.25	\$29.68
Bathtub	\$15.00	\$1.46	\$1.35	\$17.81
Bed Frame	\$5.00	\$0.48	\$0.45	\$5.93
Bike (All Sizes)	\$7.50	\$0.73	\$0.67	\$8.90
Blinds/Curtain Rod (Each)	\$3.00	\$0.29	\$0.27	\$3.56

UNIT BASED PRICES FOR BULKY WASTE

Can become quite detailed as shown at left!



BOSTON BULKY WASTE SET-OUT

What would it look like with UBP?

Portland, Maine:

Items that weigh 30 lbs. or less (and don't fit in City trash bag) collected free of charge but limited to 10 items per dwelling unit per year. Items weighing more than 30 lbs. collected for \$40 fee.

Shrewsbury, MA:

- Items weighing 20 lbs. or less that do not fit in a bag will be collected if a small PAYT bag is tied to them (examples: beach chair, umbrella, storm or interior door, stool, toy, stroller, lamp, bucket, taped mirror, small table/chair, bicycle, etc.
- Large items (couch, upholstered chair, piece of sectional sofa, queen or king mattress, bureau, desk, toilet bowl, kitchen sink, etc.) must have a \$10 bulky waste sticker attached

UNIT BASED PRICES FOR BULKY WASTE

Can be simple as shown at left.

TRANSFER STATIONS

- Bags
 - Typically sold at retailers, not at Transfer Stations
 - Payment of cash at Transfer Stations is not recommended
- Punch cards
 - Also sold at retailers with attendant determining number of punches based on number of bags or volume of cans
- Scale use for larger loads if scale is available at TS
- Bulky waste by unit or volume
 - C&D waste
 - Appliances and bulky goods
- Examples:
 - Majority of Vermont Transfer Stations/Drop-offs have bags fees and other UBP
 - Many in NH and MA also have bag fees

UBP PROGRAM LOGISTICS FOR DIFFERENT COLLECTION SYSTEMS

Save Money on Solid Waste: Understanding Full Costs and Funding Sources

CURBSIDE PROGRAMS

- Enterprise Funding Is this a goal?
 - Fund all or part of the cost through UBP rates
- Increase recycling
 - Charge rates sufficient to incentivize waste reduction and recycling
- Cost areas:
 - Collection contract(s) fixed cost
 - Disposal variable cost
 - Yard waste and recycling collection fixed
 - Yard waste processing can be fixed or variable (depending if contracted out per ton or carried out by municipal employees)
 - Recycling processing may be variable or embedded in collection cost (fixed)
- Revenue Setting Options:
 - Rates that cover disposal only (will not result in significant incentive to recycle)
 - Do you want to cover collection (and other costs) as well?
 - Minimum flat rates plus bag or cart charges

CURBSIDE PROGRAMS (CONT.)

Bags

- Choose bag vendor and use bag printing, color and graphics to educate residents
- Bag vendor typically works directly with area retailers
- Revenues remitted to municipality minus bag costs
- Cart purchases and delivery
 - Cart sizes small enough to encourage diversion
 - Cart order and delivery through vendor (set up ability to change order)
 - Monthly charge for carts based on size
- Stickers for bulky items
 - Stickers for first can only an option as well, although not as effective unless limited to <= 32 gallons

CURBSIDE PROGRAMS (CONT.)

- Collection Contract
 - May need to amend contract for collection procedures
 - Conditions under which Contractor leaves refuse behind;
 - Stickers for non collection;
 - Role in education; and,
 - Daily reports to municipality on enforcement issues
- Municipal Responsibilities
 - Educate residents
 - Enforcement for non-compliance
- Implementation Issues
 - Lead time and phase in period
 - Outreach to groups to understand purpose of UBP
 - Collection contract preparation

TRANSFER STATIONS/DROP-OFFS A CRITICAL ISSUE IN CT

- Enterprise funding goal, or just disposal costs
- Need to create level playing field if you are also requiring private subscription haulers to adopt UBP
- Cost areas:
 - Transfer Station O&M costs (fixed)
 - Capital (fixed)
 - Disposal costs (variable)
 - Any processing costs (variable)
- Revenue Setting Options
 - Volume based fees or bags
 - Disposal only or full cost
 - Minimum fixed annual fee use sticker

East Rupert / Northshire Transfer Station Costs

Annual Permit is \$5

Weighed Services (MIN. CHARGE for weighed load is \$10 per load):

Household Trash: \$114.13 per ton
Construction Debris: \$114.13 per ton
Scrap Metal: \$114.13 per ton
Clean wood or brush: \$114.13 per ton
Electronics: \$600 per ton
Tires: \$600 per ton

Other Costs:

Auto Batteries: \$8.32 each
Furniture / Mattress: \$18.67 each
Appliances without Freon: \$22.63 each
Appliances with Freon: \$41.58 each

Tires: up to 15 inch \$8.32 each
16-18 inch \$15.14 each
any larger charged per ton, see above

Bagged Trash: \$3.67 per 30 gallon bag

Fluorescent Bulbs: \$.50 per foot

Town	13+ gallon	30+ gallon	40 gallon
Brooklyn		\$1.80	
Clinton		\$1.00	
Colchester		\$3.00	
Danbury	\$2.00	\$3.00	\$4.00
Essex		\$3.00	
Killingly		\$2.50	
Lebanon	\$1.00	\$2.00	
New Fairfield	\$1.50		
New Milford	\$1.50		\$5.00
Brookfield	\$2.00		\$5.50
Sherman	\$2.00		\$5.50
Portland	\$1.00	\$4.00	\$5.00
Sprague	\$0.60	\$1.25	
Stafford	\$0.65	\$1.25	
Sterling/Voluntown		\$1.50	
Stonington	\$0.75	\$1.25	
Watertown	\$2.00	\$3.00	
Weston		\$1.50	
Wilton		\$4.00	

SOME CT BAG FEES

TRANSFER STATIONS/DROP-OFFS

- Bags or Punch Cards
 - Paying cash at TS is not recommended
 - Punch cards popular, but rely on transfer station operator to enforce
 - Bags purchased at retail locations
- Scales for larger Vehicles
 - Drive through first and recycle, then return and pay for what is left
 - Stickers for Bulky Waste
 - Or by weight, volume or type



TRANSFER STATION/DROP-OFFS

- Educate TS staff (or amend contract for private operator)
 - Load inspection
 - Enforcement
- Educate public
 - Phase in period
 - Hand out at TS 60 days ahead of time about changes
 - Press releases, media coverage







PRIVATE SUBSCRIPTION COLLECTION

- Hauling company challenges
 - Fixed cost to service household represents most of cost to hauler
 - Marginal cost to collect more refuse low
- UBP for disposal only not enough of an incentive
 - Disposal at \$70 per ton equals 3.5 cents per pound
 - At average bag weight of 24 pounds = 84 cents for disposal, plus bag cost (around \$1 per bag)
 - Too low to incontivize week behavior abo
 - Too low to incentivize real behavior change



SUBSCRIPTION (CONT.)

- Approaches base rate plus cost per volume (bag or cart size)
 - Municipal ordinance could specify maximum cart size that would form the base service (e.g., 35 gallons for weekly collection, 64 gallons for every other week collection)
 - Some multiple would be specified for larger sized refuse cart
 - Hauler required to "embed" recycling collection in charge for refuse
 - Hauler free to price "base service" for refuse (35 gallons for weekly collection) and embed recycling collection at competitive price, consistent with their cost structure
- Enforcement Necessary all haulers must offer same type of rate structure or some haulers risk losing customers
- If municipality has transfer station the cost to use transfer station must be consistent with private hauler rates

ALL PROGRAMS

- Ordinance, Contract, or Registration Changes
- Enforcement Procedures by Municipality
- Partnership with Private Operators
- Education and Outreach
 - Before program start;
 - During critical phase in period; and,
 - Throughout any pilot period.

ENFORCEMENT PROCEDURES

- Greatest with curbside programs
 - Follow up on contractor (or municipal crews) reports of illegal setouts
 - Load checks on contractor (and municipal crews)
 - Follow up on any illegal dumping activity
 - Extra vigilance (and staff) in first 6 months of program
- Transfer Station controlled area
 - Work closely with staff there to support enforcement activity, and perform education with public/users
- Subscription service
 - Develop enforceable ordinance and guidelines
 - Police all haulers equally
 - Follow up on reports of non-compliance with ordinance

OVERCOMING IMPLEMENTATION CHALLENGES

Save Money on Solid Waste: Understanding Full Costs and Funding Sources

TYPICAL BARRIERS MENTIONED

- Why bother? People aren't complaining about current system
- Illegal dumping
- Service to low income households
- Enforcing against multi-family and property owners (vs. renters)
- Managing seasonal populations
- Additional tax
- Subscription haulers won't participate

CURRENT SYSTEM ISN'T BROKEN

- Many municipalities without UBP have low recycling rates
- Not in compliance with State and municipal plans
- Communities paying for disposal are paying too much if diversion isn't maximized
- Households costs for subscription are higher than they need to be if they aren't maximizing recycling

ILLEGAL DUMPING

- Is illegal dumping already an issue?
 - If so, it may continue to be one
 - If not, it probably isn't going to be a big one if program implementation includes some level of enforcement against offenders
- Are convenience centers a back up option?
- May need to lock some business dumpsters
- Bring offenders to the public's eyes
- Enforce against early on in a new program
- Typically not a big issue in most UBP communities

SERVICE TO LOW INCOME HOUSEHOLDS

- Provide exemptions (free bags or stickers) to qualified low income households
- Be realistic about what it might cost if a household recycles
 - Recycling typically is 30 40% of MSW depending on whether bulky waste is included
 - Household should just need one bag or can per week, if they recycle
 - If there is a transfer station it can act as a relief valve for bulky wastes

MULTI-FAMILY HOUSEHOLDS

- Can be done with UBP bags provided by landlord or purchased by tenants
- If bags not an option, can establish dumpster size based on number of units (Seattle model), with extra charge for waste in non-UBP bags
- One key will be parallel and convenient recycling
- Property managers need to be on the hook for tenants behavior
- Can put trash requirements in the lease
- Non payment or repeat violators may go back to property managers
 - Lien against property for non payment
 - Refuse left behind for non compliance
 - Fines for repeat offenders (goes to property manager)
- Worcester, MA college town has had UBP for 20 years!

SEASONAL POPULATIONS

- Like multi-family it goes back to property owner or manager
 - Lease or weekly rental includes UBP bags left at rental (or small cart to use)
- For transfer station, flat fee plus bag price or punch card
 - Flat fee can be adjusted slightly down for seasonal use, but bag price remains the same
- Middletown allows seasonal residents to purchase ½ year permit

PERCEPTION OF ADDED TAX

- Separate Enterprise Fund can counteract this
- Service comes at a cost that is part of current budget and property taxes
 - Having an idea of the cost of the service (budget) that was included in tax is helpful
- Statements that "equitable" user fees will enable town to hold municipal budget increases down, and charge residents for the service they use
 - Or redirect funds to more pressing needs such as schools, roads, or public safety
- Note that using property taxes to pay for residential service (but not business service) is in essence a subsidy from businesses to households

GAINING BUY-IN FROM PUBLIC OFFICIALS

Save Money on Solid Waste: Understanding Full Costs and Funding Sources

KEY REASONS WHY UBP FAILS

- Lack of political support
- Misinformation
- A few loud opponents
- Not enough outreach
- Other?



KEY REASONS UBP SUCCEEDS

- Groundwork
- Some political support
- Benefits understood
- Benefits communicated
- Educated citizens
- Impacts on budgets



CASE STUDY - MIDDLETOWN, RI (POPULATION 16,150)

- Municipal transfer station and subscription collection service, but then transfer station forced to close
- Contracted for single hauler collection of UBP refuse,
 recycling and yard waste using UBP bags inside rolling carts
 - System cost for residents reduced by \$100,000
 - Recycling rate went from < 10% to > 40% (for MRF materials)
- Established Transfer Station Advisory Committee representative of residents (and local leaders) to help the Town transition
- Key issues:
 - Bags in carts keeps Town clean
 - Recycling coordinator for Town enforces
 - Two free bulky waste events each year (everyone loved TS!)

CASE STUDY - CONCORD, NH (POPULATION: 40,000)

- Contracts for Collection Services:
 - Curb service for 1-6 units (14,500 households)
 - Containerized service (> 6 units) for 4,800 units
 - Many small businesses were using curbside system
 - Curbside recycling for 1-6 unit and recycling drop-off for all
- ■Instituted UBP in 2009
 - Perfect storm of rising costs
 - Been rejected in 2006



CONCORD, NH

- Key implementation issues:
 - Curbside refuse in bags
 - Containerized charged on volume and collection frequency
 - Containerized buildings added single stream recycling
- Achieved 40% decrease in refuse set out, 60% increase in recycling and balanced budget in enterprise fund
- Significant outreach, education and participation with community groups to understand and address barriers

CASE STUDY - STONINGTON

- Facing disposal cost increases as landfill closed and new WTE facility opening
 - Needed to raise \$2 million to pay for disposal
- Had different types of service in fire districts
 - Some contacts and other subscriptions
 - All haulers were to use bags
- Bag prices set
- Town Council voted to go ahead with program
- Part of message was that residential properties pay disproportionate amount of solid waste costs as they represent 70% of tax base but generate 60% of solid waste
 - UBP would make this more equitable as disposal costs increase

STONINGTON

- First Selectman very involved in outreach
- Tremendous outreach effort:
 - First Selectman very involved
 - 24 public meetings/hearings
 - At Senior Center to School Auditoriums
 - Consultant doing outreach, FAQ, promotion
 - Addressed concerns of illegal dumping, impact on large families, etc.
- After six months continuation of program went out to town-wide vote
 - Heard from many opponents
 - But heard from many supporters
 - Vote 2:1 to continue program

BOTTOM LINE

- Equitable program
- Best for the environment Provides incentive for waste reduction, reuse, recycling, yard waste composting
- Saves community money
 - Avoided disposal costs
 - May reduce collection costs over time

MECHANICS OF UBP PROGRAM DESIGN

Save Money on Solid Waste: Understanding Full Costs and Funding Sources

AFTERNOON SESSION

- Review cost allocation methods to develop program budgets
- Setting rates using budgets
- Predicting revenues and addressing revenue uncertainty
- Look for opportunities to improve collection services overall
- UBP effort can enable Enterprise Fund accounting and better full cost management

BENEFITS OF FULL COST ACCOUNTING

- Determine the actual cost of MSW management (and programs)
- Clearly communicate MSW costs to the public
- Better manage MSW program costs -
 - You can't manage what you can't measure
- Compare spending on the mix of MSW services
- Help set appropriate user charges

ENTERPRISE FUNDS

- Separate from general fund:
 - Follow full cost accounting principals
 - Funded directly, or may have some support from general fund
 - Activity based budgeting and fee setting
- Revenue sources might include:
 - Bag or cart fees
 - Base rates
 - Private hauler licenses or fees
 - Revenues from recycling, if any
 - Investment income