

**CITY OF FALCON HEIGHTS  
COUNCIL WORKSHOP  
3/6/02**

**NOTICE OF MEETING  
City Hall  
2077 W. Larpenteur Ave.**

**There will be a council workshop on Wednesday,  
March 6, 2002, at 6:00 p.m. to consider the issues of  
solid waste collection. Public is invited.**

Council workshop  
3/6/02 (original)

2/26/02

**ITEM: Consideration of Solid Waste Collection Issues**

**SUBMITTED BY: Deborah Jones, Zoning and Planning Coordinator**

**REVIEWED BY: Heather Worthington, City Administrator**

**EXPLANATION:**

**Summary:**

In June, 2001, the Ramsey and Washington County Boards each decided to study the creation of a public (organized) system to collect waste produced in the counties. Input is being gathered (until March 15) from cities, townships, waste haulers, residents, businesses and other interested parties. Nothing has been concluded in advance, and no recommendations or decisions have yet been made.

This research is being done because (1) the current system is hindering environmental and public health goals, and (2) the waste industry has changed greatly in the last few years. A comprehensive outline of the background of these issues can be found in the attached documents. Additional information is available on the web at [www.co.ramsey.mn.us/recovery/index.htm](http://www.co.ramsey.mn.us/recovery/index.htm)

Based on the input gathered so far the Counties have created a framework for discussion of how public collection might work. This framework can be viewed online at [www.co.ramsey.mn.us/recovery/Public\\_Collection.htm](http://www.co.ramsey.mn.us/recovery/Public_Collection.htm); a summary is attached (8).

On April 25, a joint meeting of the two County Boards will discuss the report outlined in the framework. No action will be taken. After that meeting the Boards will decide how to move forward.

The contract with the Newport Resource Recovery Facility, which expires in 2007, is up for renewal in the middle of 2002. The County Boards must decide at that time if they want to renew the existing contract or if they want to negotiate a new contract.

Falcon Heights last surveyed residents on solid waste collection in 1990, studying the issue of "organized integrated collection" (refuse and recyclables; at that time, the city already had organized, i.e. public, recycling.). The Solid Waste Commission recommended a change in the then-current system to increase efficiency, reduce wear and tear on the streets and reduce the cost of collection. After a public hearing and considerable lobbying by the haulers, organized integrated collection was not adopted; although options were left open.

There have been many changes in the intervening years.

- The city has instituted Friday-only trash pick-up
- The streets and alleys have been reconstructed or in the case of Northome streets, milled and overlaid.
- The Solid Waste Commission became inactive in 1998

- The market has changed substantially; many small independent haulers have disappeared and most of the business in the Metro area has been taken over by the "big three." For instance, Woodlake, the most popular hauler in Falcon Heights in 1990, was bought out by one of the large companies and no longer exists.
- Falcon Heights' present recycling contract, with E-Z Recycling, expires in 2003.

**ATTACHMENTS:**

1. Solid Waste Collection Profile for Falcon Heights (from the Ramsey/Washington Counties Preliminary Public Collection Framework discussion draft, January, 2002)
2. Powerpoint Presentation: Exploring Public Collection of Solid Waste, August 16, 2001
3. Fact Sheet: Public Collection Study Process  
Ramsey/Washington County Resource recovery Project
4. Letter from National Solid Wastes Management Association, Washington & Ramsey Counties Work Group, October 12, 2001 (This is an organization of waste haulers.)
5. Fact Sheet: What is Public Collection?  
Ramsey/Washington County Resource recovery Project
6. Fact Sheet: What is the Current Solid Waste Collection System? Ramsey/Washington County Resource recovery Project
7. Fact Sheet: Environmental Consequences of Our Solid Waste Management Choices - Ramsey/Washington County Resource recovery Project
8. Powerpoint Presentation: Public Collection Study January - March, 2002
9. The Exploration of Public Collection in Ramsey and Washington Counties, A Potential Framework for Public Collection, Executive Summary. (February, 2002)
10. ESAL (equivalent single axle load) calculation for cars and garbage trucks (1 garbage truck is equal to 857 cars according to H.R. Green, city engineers).
11. Article from Minnesota Technology Transfer Program regarding ESAL Levels on County roads—for background purposes, see first paragraph explaining what ESAL is used for.

**ACTION REQUESTED:**

- Discussion
- Direction to staff for next steps

①

**Ramsey County Municipality Profiles  
Working Draft for Discussion Purposes**

**Falcon Heights**

**Existing Collection System:**

(Reflects the best available information from files and other sources. The County welcomes updates and corrections.)

**Single-Family Residential**

**MSW Collection Type:** Open – one day collection (Fridays) for both MSW and recycling  
**MSW Haulers Active:** Aspen, BFI, Horrigan Hauling, Superior, WML, Gene's Disposal, Walters  
**MSW Billing:** Hauler bills customer

**Recycling Collection Type:** Organized: City contracts with single collector  
**Recycling Haulers Active:** E-Z Recycling  
**Recycling Billing:** Billed by third party (Saint Paul water utility bills) to residents

**Yard Waste Collection Type:** Curbside collection is open, optional; County yard waste sites in Arden Hills, Midway in Saint Paul .

**Haulers actively providing curbside service:** Aspen, BFI, Horrigan Hauling, Superior, WML, Gene's Disposal, Walters

**Brush Collection Type:** Curbside collection is open, optional; Collected at municipal clean up events; self-haul to private facilities.

**Haulers actively providing curbside service:** Aspen, BFI, Horrigan Hauling, Superior, WML, Gene's Disposal, Walters

**Bulky Waste Collection:** Curbside collection is open, optional; collected at municipal clean-up events; self-haul to private facilities

**HHW:** Ramsey County HHW satellite sites in Roseville, Shoreview, and year-round HHW facility at Bay West in Saint Paul. Optional HHW collection at City clean-up in the fall.

**Other:**

**Municipal Clean-up:** Coordinated/combined with two Planning Districts in St. Paul (D10 and D12)

**Commercial MSW & Recycling Collection:** Open collection

**Multi-Family MSW & Recycling Collection:** Open collection for MSW; organized collection for recycling offered to all residences in City

**Ramsey County Municipality Profiles  
Working Draft for Discussion Purposes**

**Falcon Heights**

**Stated Preferences To Date:**

Staff willing to have zones established if necessary. Concern for street wear/tear. Previous consideration of organized collection found established hauler relationships.

**Potential Option(s)**

**A**

**B**

**Single-Family Residential**

***MSW***

Stay the same – choice offered through one zone with seven haulers under contract

One to seven zones with one hauler per zone. Or, maintain choice with one zone for fewer haulers, suggest two or three haulers

***Recyclables***

Stay the same – City has one zone and contracts with a single hauler

County assumes contract

***Bulky Wastes***

Optional service at curbside

Optional service at curbside

***Yard Wastes***

Optional service at curbside; continue Ramsey County drop-off sites, particularly the Midway and Arden Hills sites

Optional service at curbside; continue Ramsey County drop-off sites, particularly the Midway and Arden Hills sites

***Brush***

Optional service at curbside

Optional service at curbside

***HHW***

Continue Ramsey County drop-off sites; add some materials to MSW or recycling collection

Continue Ramsey County drop-off sites; add some materials to MSW or recycling collection

***Other***

Consider adding source separated organics composting in combined collection with recycling or MSW

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**Commercial MSW & Recycling**

County-wide multiple hauler contracts for MSW and recycling. Consider adding source separated organics composting in combined collection with recycling or MSW

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**Ramsey County Municipality Profiles  
Working Draft for Discussion Purposes**

**Falcon Heights**

**Multi-Family Residential  
MSW & Recycling**

County-wide multiple hauler contracts for MSW. City continues recycling contract. Consider adding source separated organics composting in combined collection with recycling or MSW

County-wide multiple hauler contracts for MSW. County assumes recycling contract. Consider adding source separated organics composting in combined collection with recycling or MSW

**Municipal Clean-up**

Continue with at least an annual clean-up event

Continue with at least an annual clean-up event

**Procurement**

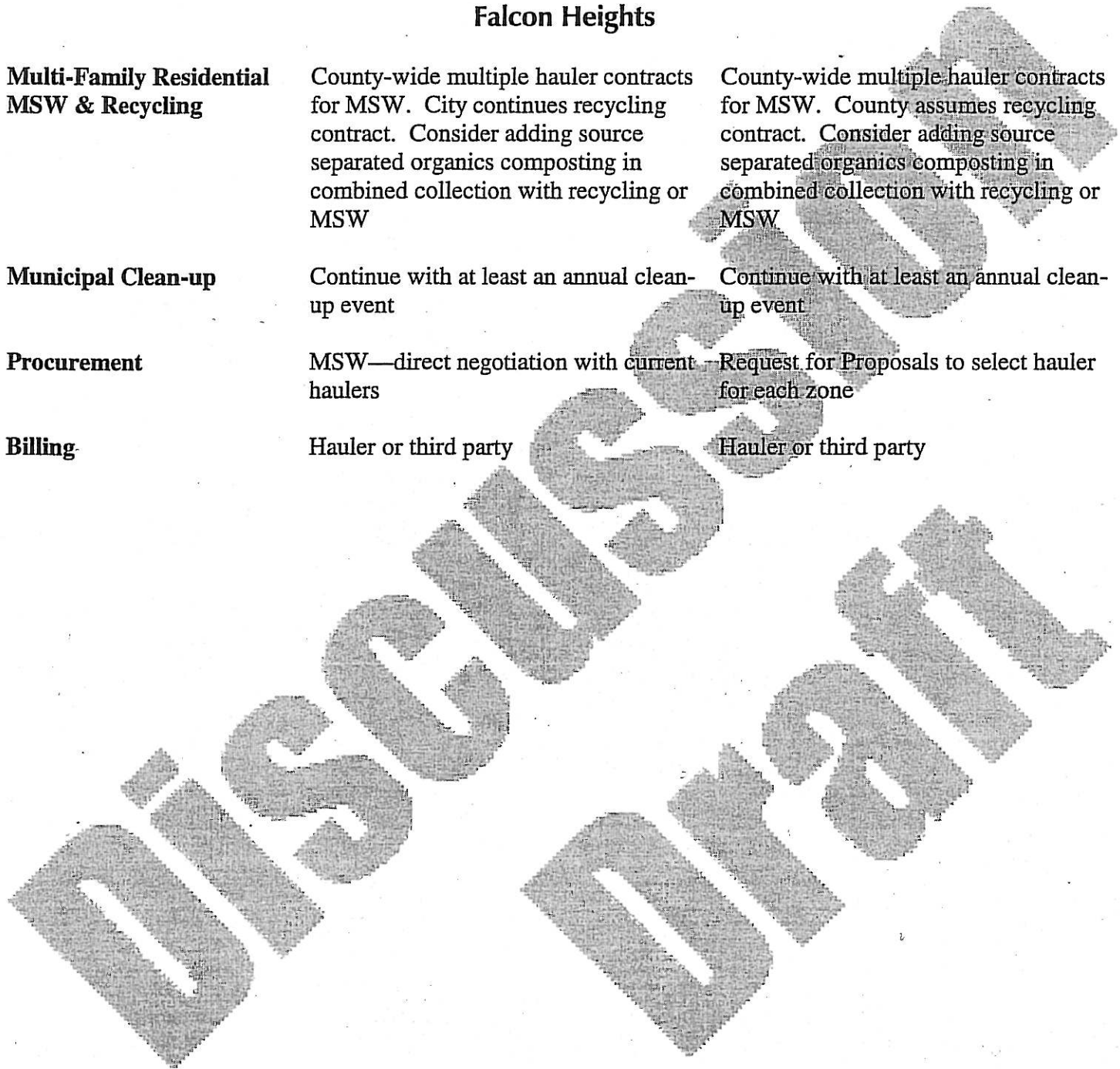
MSW—direct negotiation with current haulers


Request for Proposals to select hauler for each zone

**Billing**


Hauler or third party

Hauler or third party




 *Exploring Public Collection of Solid Waste*


Ramsey County Recycling Coordinators  
August 16, 2001

 *Purpose of meeting*

- ❖ Outline the current situation for waste management
- ❖ Describe public collection
- ❖ Explain the Counties' process for exploring public collection
- ❖ Discussion/input

 *Why are the Counties examining public collection?*

**Ramsey and Washington Counties are examining public collection because the current system is hindering environmental and public health goals.**

 *Solid Waste*

- ❖ Solid waste includes most of the things that households and businesses throw away, including
  - ▣ trash/garbage,
  - ▣ recyclables,
  - ▣ yard waste, brush & branches,
  - ▣ Household hazardous waste,
  - ▣ Bulky waste
  - ▣ Construction and demolition waste

### *Solid Waste*

Solid waste, no matter how it is collected and handled, affects the environment and public health in some way.

### *Industry Changes*

- ❖ In the past few years the waste industry has changed as small local firms have been merged with large, international corporations.
- ❖ Lately, the industry is making decisions about how waste is handled that puts Ramsey and Washington County's goals out of reach.

market driven

### *Government's Role*

- ❖ Government role is to assure protection of public health and safety.
- ❖ Minnesota has taken an active role in solid waste planning, for the purpose of preventing future costs and problems.

### *Key Point*

A different way of providing collection service can be a way to meet the goals.



### *Goals for the Metropolitan Area*

- Protect health and the environment, and conserve resources;
- Manage the waste according to the hierarchy and reduce landfilling;
- Manage waste cost-effectively, while reducing the potential liability;;
- Encourage generators to take responsibility for their waste; and
- Allocate cost equitably among those that use and benefit from the system.

### *Ramsey & Washington Goals*

- ◊ Working with others;
- ◊ Assuring waste services are available to all
- ◊ The system is cost-effective;
- ◊ Emphasis on prevention of future problems;
- ◊ Preference for the private sector to the extent that State and local goals are met; and
- ◊ A key element to success is education about sound environmental practices.

*were developed w. a lot of public input*

### *Plan validity*

These goals were developed with a lot of input from the public, and reflect the values of citizens.

- ☒ Surveys
- ☒ Citizens Jury

### How much waste is there?

A lot!

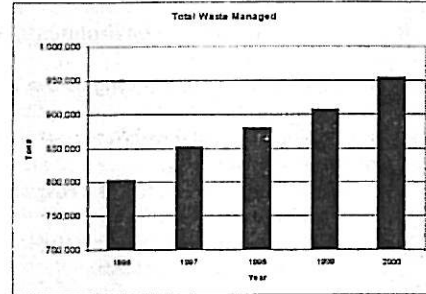
**In 2000:**

**Metro area: 3.3 million tons  
Ramsey/Wash: 1 million tons  
tons**

### How much is 1 million tons?

- ⊕ Would fill a volume 10 acres, 100 feet deep
- ⊕ 127,000 garbage trucks, which, if parked bumper to bumper would form a line 726 miles long; from Saint Paul to Detroit
- ⊕ 5.5 million cubic yards, which would fill 36.7 million 30-gallon trash bags
- ⊕ It is a lot.

### Waste Generation

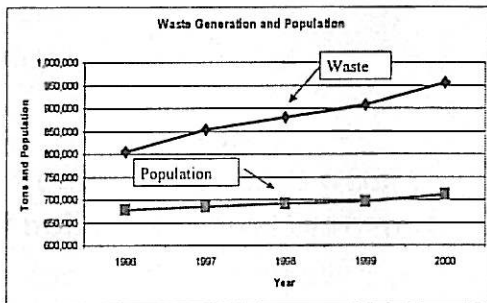


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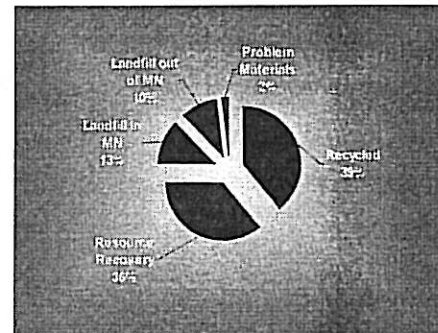
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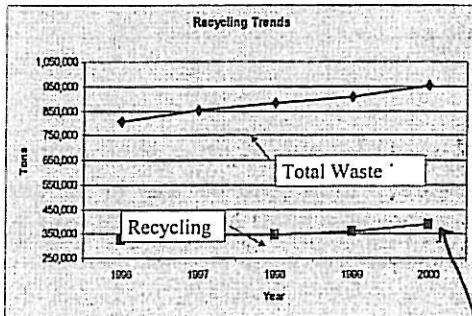
### Waste Generation & Population



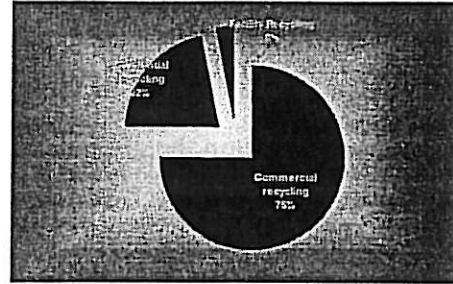
### What happens to all of that trash?



### Recycling Trends



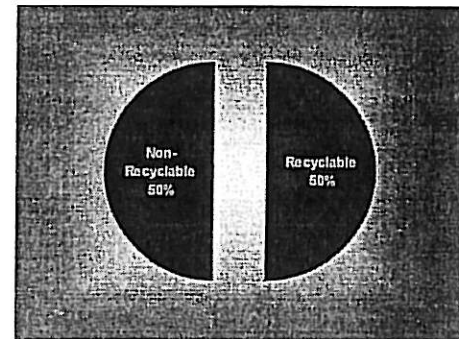
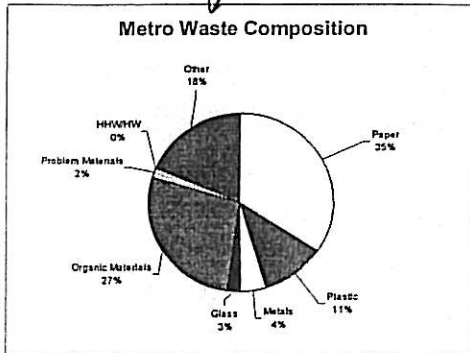
### Source of Recycling

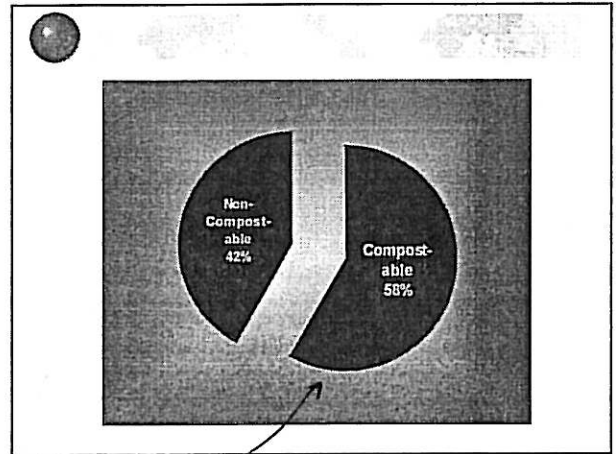
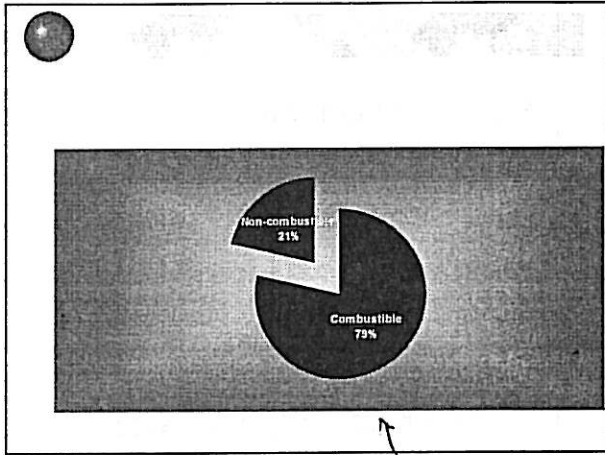


Artifact from Internet reporting

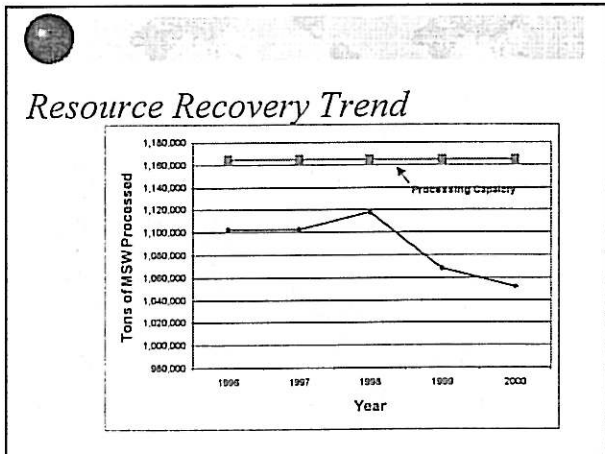
Thrown away

### Metro Waste Composition





resources getting wasted



- ### Specific Problems
- ❖ Waste generation is increasing at a fast pace
  - ❖ Recycling is stagnant, or decreasing; underutilized;
  - ❖ Resources are being disposed in landfills;
  - ❖ The growth in waste is being managed at the lower end of the preferred methods;

### *Specific Problems*

- ❖ Economic incentives are toward disposal, not reduction, recycling, composting, processing
- ❖ Costs are not equitably allocated +
- ❖ Development of facilities is not orderly and deliberate
- ❖ Emphasis on system is on cost, not in balance with environmental and public health considerations
- ❖ System now masks responsibility

+ people are paying w. taxes,  
not when they buy the stuff

### *What is Public Collection?*

- Public entities:
  - ❖ Accept responsibility to decide how to manage solid waste;
  - ❖ Develop the means to carry out those decisions;
  - ❖ Use authority and responsibility provided in Minnesota Statutes wherein solid waste collection and management is an essential public service; and
  - ❖ Adopt ordinances and develop service delivery contracts.

### *Potential Benefits*

- ❖ Achieving waste management goals
- ❖ Restoring generator-based responsibility and financing
- ❖ Improve public health, safety, welfare
- ❖ Flexibility of service delivery options

### *Waste Sources*

- ❖ Residential
  - Single-family housing
  - Multi-family housing
- ❖ Commercial
- ❖ Industrial
- ❖ Institutional

\* Nothing in system right now ensures competition among haulers ← consolidation

\* County has inadequate ability to enforce

### Waste Types

- ❖ Mixed municipal solid waste (MSW)
- ❖ Recyclables
- ❖ Yard waste (including tree/shrub waste)
- ❖ Compostable
- ❖ Problem waste
- ❖ Household hazardous waste
- ❖ Construction & demolition waste
- ❖ Very-small quantity generator hazardous waste

### Service Delivery Methods - *How?*

- ❖ Public Trucks & Crews
  - ❑ Not preferred - initial gut reaction: cost \*
- ❖ Private hauler contracts - as long as goals are being met.
  - ❑ Single or multiple hauler/zone
- ❖ Exemptions
  - ❑ Existing "organized collection" contracts for MSW and recycling
  - ❑ Self-haulers - as long as basic ordinances are met.

\* State has a preference for services provided by private sector

DJ: Is this an "old" goal?

! → Not based on economics, but philosophical + political.

### Service Delivery Zones - Approaches

- ❖ Countywide;
- ❖ Municipal boundaries;
- ❖ Subdivide large municipalities; or
- ❖ Based on groups of municipalities

### Flexibility

- ❖ Zones for
  - ❑ Waste Sources
  - ❑ Waste types
- ❖ Service delivery for
  - ❑ Zones
  - ❑ Waste Sources
  - ❑ Waste Types

re. different zones for different sources

### How do we collect money for this?

- ◆ Service charge
  - Property-based, hauler-based or mix
- ◆ County direct bill
  - Collection costs and/or disposal costs
- ◆ Hauler collected direct bill
- ◆ Municipalities utility bill

### Financing issues

- ◆ Complex economic system
- ◆ History: single hauler generally less expensive
- ◆ Generator pay more directly for service
- ◆ Level of competition? — *nothing now ensures competi*
- ◆ An integrated system costs more than landfill only

Goal: More charges based on generators + users, not property Tax.

### Financing issues (cont'd)

- nothing inherent*
- ◆ No reason to believe public collection will cost more
- ◆ Potential to return to more direct payment by generators
- ◆ Current "free market" system has no assurance of being as competitive

### Key points — about where we are now.

- ◆ NO PREDETERMINED OUTCOMES
- ◆ Detailed database — need information from cities/towns — *being put together*
- ◆ Seeking input
- ◆ Address questions/misconceptions
- ◆ Seek win/win to assure goals are met

Without real competition, costs don't go up but prices to consumers do go up.

**Study Process**

- July – December 2001: Public dialogue
- January 2002: Boards discuss, if decide to move forward, then
- February 2002: Resolution of Intent
- March – May 2002: System design
- June – July: Hearings, ordinance process
- August – November 2002: Contracts
- 2003 - Implement

timeline subject to adjustment + feedback

Public input modes  
email address  
fax #

~~\* live~~  
postage paid postcards – can be distributor  
\* web page ← create link to.  
- comment form on website

→ reflect cultural diversity of Ramsey county

www.co.ramsey.mn.us  
scroll down ↓  
environment  
resource recovery project.

County Authority  
145A  
400  
473  
115A





RAMSEY/WASHINGTON COUNTY  
**RESOURCE RECOVERY PROJECT**  
1870 Beam Avenue • Suite B • Maplewood, Minnesota 55109 • 612/773-4494 • Fax 612/773-4496

## Fact Sheet

### Public Collection Study Process

#### *What is the Process the Counties are Using to Study Public Collection?*

On June 19, 2001 the Ramsey and Washington County Boards each decided to study the possible creation of a public system to collect waste produced in the Counties. The study's results have not been pre-decided. The Counties have begun a thorough process to study public collection. The Counties will seek input from cities, townships, waste haulers, residents, businesses and any other interested parties. For 2001 the timeline is:

- ❑ **August – December 2001** – Meetings and discussions with cities, townships, haulers, businesses, and the general public. Talk about what public collection could look like.

In early 2002 the County Boards will decide if they want to move closer to putting a public collection system in place. If they decide to move closer to putting a public collection system in place, then the process would likely be:

- ❑ **February 2002** – Adopt Resolution of Intent to establish public collection. Circulate draft ordinance amendments for public meetings and discussion.
- ❑ **March – May 2002** –Design the public collection system. This would include service zones, services to be included, and funding.
- ❑ **June 2002** – Hearings and consideration of final ordinance amendments.
- ❑ **August – November 2002** – Negotiate and finalize contracts with haulers.
- ❑ **January 1, 2003** – Begin Public Collection.

#### **How do I get more information?**

There are other fact sheets about public collection. You can find them at:

[www.co.ramsey.mn.us/recovery/index.htm](http://www.co.ramsey.mn.us/recovery/index.htm)

If you have any questions you can also call the Ramsey/Washington County Resource Recovery Project at (651) 773-4494, send an e-mail to [public.collection@co.ramsey.mn.us](mailto:public.collection@co.ramsey.mn.us), or leave a message at (651) 773-4476.



RAMSEY/WASHINGTON COUNTY  
**RESOURCE RECOVERY PROJECT**  
1670 Beam Avenue • Suite B • Maplewood, Minnesota 55109 • 612/773-4494 • Fax 612/773-4496

## Fact Sheet

### What is Public Collection?

#### ***What is public collection of solid waste?***

Public collection of waste is when a city, township or county provides or arranges for collection services. The services can collect a wide range of wastes, including garbage, recyclables, compostables (such as yard waste or food waste), bulky items (such as major appliances), household hazardous wastes, and tree and shrub waste.

If a company is free to get a hauling license and compete for any customers it wants, it is called "open collection." If the local government provides collection services, either by using public employees and equipment or by contracting for the services, it is called "public collection."

#### ***Is public collection provided using government trucks?***

Some cities own trucks and have municipal employees to do the work. The City of Minneapolis uses public employees to provide collection service for garbage, recyclables yard waste and other items to half of the residents of that city. The City contracts with a private hauler to serve the other half of the City.

Many local governments in the Twin Cities area provide public collection through a contract with a private waste hauler to provide the service in a defined area. Fifteen cities/towns in Ramsey and Washington Counties have done this for garbage collection, and 39 cities and towns in the two Counties have contracted with a recycler to provide residents curbside recycling.

Ramsey and Washington Counties would not be likely to use government trucks or employees in public collection, except in cases where collection services are already provided by public employees.

#### ***Local Responsibility and Authority***

Cities, townships and counties are charged by the State of Minnesota with protecting public

health, safety and welfare, and protecting the environment. Garbage collection is a necessary public service to assure those charges, such as proper handling of sewage, provision of safe drinking water, providing safe roads, and fire and police protection services.

Some local governments have decided just to license and regulate private companies that provide collection services. Others have decided that it is in the best interest of residents and businesses to have the local government provide or arrange for the service.

Local governments have legal authority granted by the State of Minnesota to provide the service directly. If Ramsey and Washington Counties decided to pursue public collection, they would do so under such authority.

### ***What are the Potential Benefits of Public Collection?***

How waste is handled can have a big impact on public health and safety and the environment. Potential benefits of public collection are:

- **Health, Safety, Environment:** Counties are required by law to plan and put in place systems to make sure waste created by residents and businesses is handled safely. Both Ramsey and Washington Counties have solid waste plans. These plans have been approved by the State of Minnesota. The Counties may not be able to reach the goals in these plans if changes are not made to the waste management system. The Counties are exploring whether public collection could help reach environmental and health goals, including eliminating illegal dumping and open burning of trash.
- **Cost to consumers:** Costs to customers in a public collection program can be lower than in an open collection program. Costs can be better charged to those who create the waste based on the volume of waste they produce.
- **Traffic related issues:** Fewer garbage trucks might go down streets and alleys. This means less traffic, less noise, and lower road maintenance costs. Less truck traffic also means less air pollution from the truck exhaust and less fuel used to collect wastes.
- **Risk related issues:** Taxpayers can face long-term costs that don't show up on the garbage bill. Costs like cleaning up old landfills. How trash is handled can make a difference in whether there will be hidden costs in the future.
- **Proper management of waste:** In a public collection system waste can be taken to facilities and with management methods most appropriate for that waste. Food waste and yard waste can go to composting, recyclables to markets, household hazardous waste for proper recycling or management, burnable waste to waste-to-energy, and the rest to landfills.

Klee - 1/11  
(4)



**EIA**  
**NSWMA**  
**NATIONAL SOLID WASTES MANAGEMENT ASSOC.**  
**Washington and Ramsey Counties Work Group**

October 12, 2001

Ms. Heather Worthington  
Administrator  
City of Falcon Heights  
2077 Larpenteur Avenue West  
Falcon Heights, MN 55113-5551

OCT 16 2001

Dear Ms. Worthington:

As you may know, Washington and Ramsey Counties are considering a proposal to change the current consumer choice system of waste collection to a government-managed system known as public collection. Based on customer surveys and feedback, we know that the current waste system serves our customers well and is not in need of a major restructuring as suggested by the counties.

#### **Public/Regulated Collection Creates Risk**

Increased county involvement in waste operations and the intrusion into the free market is bad public policy and would have a negative impact on the residents of Washington and Ramsey Counties. We know from our customer research and extensive experience that the public expects three primary things from their waste hauler, each of which has been shown to be jeopardized in other communities that have moved to public collection:

- **Choice.** Customers highly value the right to choose who provides their home or business with waste hauling services. In many cases, the customer and hauler have formed strong personal relationships.
- **Price.** Customers are sensitive to the cost of their waste hauling services. They want the option to shop and set the rates they pay for waste hauling and determine the services they will receive, not rely on government to negotiate a price on their behalf.
- **Reliability.** Customers want reliable service and the ability to change their waste service provider if a hauler doesn't meet their expectations.

#### **Critical Questions for the Counties**

As you talk to representatives of the counties, there are several questions we encourage you to ask.

- Do the counties have any assurance that through a public collection system they will receive the volume of waste needed so that the financial obligation for the bond payments on the Newport facility can be met without default?
- Will residents continue to have the ability to choose the waste hauler for their home or business?
- Will the price to residents and businesses be increased or decreased with a government-run waste system?
- How will this money be collected (i.e., property taxes, special assessments, user fees, other taxes)?

- What is the level of taxpayer subsidy required to support a public collection system?
- What are the financial implications to the counties for taking over waste hauling services and moving to public collection; for example, will additional staff for oversight of the system be required?
- Will your city or township lose its local control over waste hauling decisions?

### **Haulers' Proposal Keeps Counties Financially Whole**

What you may not know is the waste hauling companies that serve Washington and Ramsey Counties have offered to deliver enough waste volume to the Newport Refuse Derived Fuel (RDF) plant to meet its financial obligations. We have assured the counties that our waste deliveries will be sufficient to prevent any default on the plant's bonds that may result in new taxpayer costs.

### **Our Pledge**

As the waste haulers serving your community, our proposal will permit us to pledge that we will:

- continue to work with Washington and Ramsey Counties and local governments to seek to assure the tonnage needed to support the counties' financial commitment to NRG.
- continue to provide our customers with the freedom to choose who provides waste hauling services to their home or business
- continue to provide our customers with the ability to negotiate their own rates and services
- continue encouraging recycling and environmental protection
- continue providing customers with reliable service.

There are two sides of the debate regarding public collection and we are moving forward with plans to make certain the people of Washington and Ramsey Counties are made aware of this information. We have also begun forming a coalition of concerned residents, community leaders, public officials and businesses to voice our concern and dissatisfaction with the counties' proposed plans.

We welcome open dialogue about this topic and would be happy to meet with you individually or make a presentation at an upcoming city council or township board meeting. In the meantime, if you have questions or would like additional information, please contact Douglas Carnival at 612/338-2525.

Respectfully,



Peggy Macenas  
Manager, Midwest Region

Charles Murphy, Superior/Onyx  
Mark Stoltman, Randy's Sanitation  
Chuck Wegner, Browning Ferris Industries  
Roger Vasko, Vasko Rubbish Removal

George Walter, Walter's Recycling & Refuse  
Ryan O'Gara, SKB Environmental  
Julie Ketchum, Waste Management

cc: Ramsey/Washington County Board of Commissioners  
Ramsey/Washington County Administrator

### ***What Would Public Collection Look Like in Ramsey and Washington Counties?***

The Counties have a number of options they could pursue. Choices that would be made if the Counties decided to proceed include:

- Would public collection serve residents or businesses, or both?
- What wastes should be included – garbage, recyclables, yard waste, food waste, household hazardous waste, bulky items?
- Should there be more than one hauler in a service area?

The Counties are having discussions with cities, townships, waste haulers, businesses, and residents to assist in designing what a system might be like. This will be done before the County Boards decide whether to proceed with public collection.

### **How do I get more information?**

There are other fact sheets about public collection. You can find them at:

[www.co.ramsey.mn.us/recovery/index.htm](http://www.co.ramsey.mn.us/recovery/index.htm)

If you have any questions you can also call the Ramsey/Washington County Resource Recovery Project at (651) 773-4494, send an e-mail to [public.collection@co.ramsey.mn.us](mailto:public.collection@co.ramsey.mn.us), or leave a message at (651) 773-4476.



RAMSEY/WASHINGTON COUNTY  
**RESOURCE RECOVERY PROJECT**

1670 Beam Avenue • Suite B • Maplewood, Minnesota 55109 • 612/773-4494 • Fax 612/773-4496

## Fact Sheet

### What is the Current Solid Waste Collection System?

#### ***What is solid waste?***

We all discard solid waste from our homes and places of work. Some typical types of waste include:

- Trash (garbage)
- Recyclables (such as newspapers, cardboard, cans and bottles)
- Yard waste (leaves, grass clippings, weeds)
- Brush/branches
- Household hazardous waste (such as paint and pesticides)
- Bulky waste (such as old couches and other large furniture)
- Construction and demolition waste

#### ***How much do we produce?***

A ton per person per year! Actually 560,000 tons of trash during 2000:

- This amount of trash would cover over 370 professional soccer fields 3 feet deep!
- About half the trash was produced by residents, and the other half by businesses

As well as:

- 389,000 tons of recyclables during 2000
  - About three-fourths of this amount was produced by businesses, and a quarter by residents
- 65,000 tons of leaves and grass that were composted
- And large quantities of other wastes such as construction and demolition wastes and bulky wastes

#### ***How is our trash collected now? Where does it go?***

##### ▪ **Trash**

- The vast majority of trash produced in both counties is collected by trash haulers
- About 100 haulers operate in the counties, but almost 2/3 of the trash is picked up by just three haulers
- All businesses in the two counties select their own trash hauler
- Most residents in the two counties select their own trash hauler. Eighty-seven percent select their own waste hauler ("open" trash collection) and 15 of 51 cities/townships, about 13% of residents in the two counties, contract for residential trash collection through public collection.
- A small number of residents and businesses haul their trash directly to transfer stations or other solid waste facilities

- About 71% of trash produced in the counties is delivered to the Ramsey/Washington County Resource Recovery Facility in Newport, MN. At the Facility most waste is processed into fuel; Xcel Energy burns this fuel at power plants to produce electricity; metals are also recovered for recycling.
- About 29% of the trash produced in the counties is delivered directly to landfills, mostly in Iowa and Wisconsin.
- Some illegal dumping and open burning of trash occurs, posing a threat to the health and safety of the community.

- **Recyclables**

- Residences: Private haulers provide curbside recycling service to all single-family homes. Often, this is done via a contract with the City. Many multi-family residents also have recycling services available at their building/complex.
- Businesses: Most businesses recycle some materials. The majority of these businesses have their trash hauler or another hauler collect these materials, but some businesses haul recyclables themselves.
- Some recyclables from both residents and businesses are delivered directly to manufacturing plants (such as newspaper and cardboard to a paper mill that produces new cardboard), and some are delivered to intermediate facilities where they are prepared for shipment to manufacturing plants.

- **Yard waste**

- Most residents deliver yard waste themselves to county, city or private composting sites, or they compost the waste in their own compost bins. This material is converted into compost, for use in garden and landscaping projects.
- Most trash haulers will pick up yard waste, for an extra fee, from residents for delivery to private composting sites.
- Lawn/landscape firms may also collect yard waste.

- **Brush/branches**

- Most trash haulers will pick up brush from residents. There may be limitations on size of materials and quantities.
- Residents in many cities/towns can take brush to city-sponsored cleanup events or in some cases other specified locations.
- Residents and businesses can take brush to transfer stations.
- Tree services and landscaping firms may also collect brush.
- Brush is usually ground or shredded and then is often used as mulch for trees and other plants. Sometimes it is burned to produce energy.

- **Household hazardous waste**

- Residents may deliver many types of hazardous household wastes to County-sponsored collection sites. Both Counties provide a year-round site and several seasonal collection sites.
- Residents may take items such as used oil and car batteries to various businesses which accept them for recycling.
- Some household hazardous wastes are recycled (such as latex paint), some are used as fuel, and some are sent to special incinerators or land disposal facilities.

- **Bulky waste**

- If materials are in good condition and can still be used, residents may be able to arrange pickup by a non-profit firm or take them to a donation center.



- Residents may be able to make special arrangements with trash haulers for pickup. In some cases residents can bring bulky materials to city cleanup events or to transfer stations. These materials are then taken to the Newport facility or to landfill.
- Some community clean-up events have an area for useable items for others to take.
- **Construction and demolition waste**
  - Trash haulers or specific construction and demolition (C&D) haulers with roll-off boxes typically collect this waste from home improvement and construction projects.
  - A significant portion of C&D waste (cardboard, sheetrock, untreated wood) can be recycled, while the remainder is taken to landfills.

#### **How do I get more information?**

There are other fact sheets about public collection. You can find them at:

[www.co.ramsey.mn.us/recovery/index.htm](http://www.co.ramsey.mn.us/recovery/index.htm)

If you have any questions you can also call the Ramsey/Washington County Resource Recovery Project at (651) 773-4494, send an e-mail to [public.collection@co.ramsey.mn.us](mailto:public.collection@co.ramsey.mn.us), or leave a message at (651) 773-4476.



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## Fact Sheet

# Environmental Consequences of Our Solid Waste Management Choices

### What is solid waste?

We all discard solid waste from our homes and places of work. Some typical types of waste include:

- Trash (also called garbage or mixed municipal solid waste)
- Recyclables (such as newspapers, cardboard, cans and bottles)
- Yard waste (leaves, grass clippings, weeds) and brush/branches
- Household hazardous waste (such as paint and pesticides)
- Bulky waste (such as old couches and other large furniture)
- Construction and demolition waste

### Why should I care about how my waste is managed?

How your solid waste is managed can have direct and indirect effects on the environment, including:

- Water pollution
- Air pollution
- Greenhouse gas emissions
- Energy use
- Using up natural resources
- Using up land
- Watershed and wildlife impacts

These effects may be magnified over time because the amount of solid waste generated in Ramsey and Washington Counties and in Minnesota continues to increase each year.

### Are some methods of managing solid waste better than other methods, in terms of adversely affecting the environment?

Yes. For over 20 years the State has encouraged methods of solid waste management other than using landfills. State law includes a waste management goal and order of preferred waste management methods (often called the "waste management hierarchy"):

The waste management goal of the state is to foster an integrated waste management system in a manner appropriate to the characteristics of the waste stream and thereby protect the state's land, air, water, and other natural resources and the public health. The following waste management practices are in order of preference:

- (1) waste reduction and reuse;
- (2) waste recycling;
- (3) composting of yard waste and food waste;

- (4) resource recovery through mixed municipal solid waste composting or incineration;
- (5) land disposal with methane recovery; and, (6) land disposal without methane recovery.

The Minnesota Office of Environmental Assistance (MOEA) has stated:

As we generate and manage more waste, particularly by landfilling, we will lose opportunities to decrease pollution and greenhouse gases, increase liability exposure, and create eyesores in our communities.

In 2000 the MOEA reviewed several recent studies and concluded:

Research indicates that there are considerable resource savings and environmental and economic benefits from the reduction, reuse, recycling, and recovery of solid waste. Despite this fact, landfilling continues to be an increasing method of disposal....The studies conducted to date support the solid waste management hierarchy set out in Minnesota statute. They demonstrate that environmental benefits such as resource conservation, energy conservation, and reduced pollution accrue as waste is reduced or managed as a resource.

### **What can be done to reduce adverse environmental consequences of managing solid waste?**

Ramsey and Washington Counties have solid waste master plans that have been approved by the State of Minnesota. These plans call for an integrated solid waste management system that mirrors the State "hierarchy" of waste management methods. Thus, these plans emphasize waste reduction (often called "source reduction"), recycling, composting of yard and food waste, and resource recovery of remaining trash as much as possible. Landfills are still needed for some wastes, but are the least preferred method.

- Waste/Source Reduction is the attempt to reduce the amount and toxicity of waste by not generating it in the first place, because waste and its potential environmental consequences is produced when a waste is discarded. Examples include using reusable instead of disposable cups, or limiting or eliminating the use of lawn and garden chemicals.
- Recycling means taking a waste material and converting it to another product in a manufacturing process, instead of using virgin materials. For example, many paper mills use old newspapers and cardboard to make new paper products instead of using trees. Overall, environmental impacts from recycling, such as use of fuel in recycling trucks, are outweighed by the reductions in energy use, air and water pollution, wildlife habitat, etc.
- Composting of yard waste, food waste, or other organic materials results in a finished compost that can be added to gardens, lawns, or farm fields to enrich the soil. This is similar to the natural process that occurs in forests and prairies, whereby leaves or other plant matter decays and becomes part of the soil.
- Resource Recovery includes waste-to-energy (incineration) plants that take solid waste that is not recycled or composted and convert it to fuel for producing electricity (or other forms of power). This reduces the environmental impacts from use of coal or nuclear fuel to produce electricity. The Ramsey/Washington County Resource Recovery Facility in Newport, MN, is a refuse-derived-fuel plant—a type of waste-to-energy facility—and each year it produces the amount of electricity needed for 28,000 homes.

### **How do I get more information?**

There are other fact sheets about public collection. You can find them at:

[www.co.ramsey.mn.us/recovery/index.htm](http://www.co.ramsey.mn.us/recovery/index.htm)

If you have any questions you can also call the Ramsey/Washington County Resource Recovery Project at (651) 773-4494, send an e-mail to [public.collection@co.ramsey.mn.us](mailto:public.collection@co.ramsey.mn.us), or leave a message at (651) 773-4476.

# Public Collection Study



January – March, 2002




## Purpose of meeting

- Review current situation for waste management and state the problem
- Describe public collection framework
- Discussion/input






## In Brief

- Study only: *no decisions have been made*
  - Solid waste is an environmental and public health issue with history of government involvement
  - Trends show that we are falling short of environmental, health and safety goals
  - A change in collection may reverse those trends
  - A framework for what public collection could look like has been developed for discussion
- 



## What is the Problem?

- Losing ground in protecting environment, health and safety with current solid waste management
  - Too much waste generated
  - Recycling is stagnant or decreasing
  - Increased landfilling
  - Resources being wasted, not conserved



## What's the problem?

- Most of the collection system is working well, but the problem is what happens to waste after it is collected.
- Key decisions are made with a business focus on short-term costs, and business interests don't always reflect public values



## What is causing this?

- Large companies are driving decisions about what happens to waste after it is collected
- Because it is cheaper to put waste in landfills incentives to reduce, reuse, recycle have diminished
- In the past 6-7 years small local firms have merged with large international corporations.
- In R/W Counties, 3 national haulers collect 65% of MSW; the top five haulers collect 75% of the MSW



## Why should we care?

- 1970's – 1980's: landfills were discovered to be major polluters, and Minnesota put laws in place to prevent future problems
- 1998: State decided to take over 102 closed landfills – clean up cost over next 30 years: ~ \$500,000,000



## Why should we care?

- Ramsey and Washington Counties currently produce almost 1,000,000 tons of waste each year.
- How that is handled affects public health and the environment.
- Minnesotans care about the environment:
  - Strong environmental laws
  - Citizens jury values
  - Surveys

## What is the answer?

- Minnesota says: “pay as we go,” handle waste to prevent future problems
- Use an integrated system to:
  - Reduce the amount produced
  - Reduce and manage toxics
  - Recycle...at least 50% recycling ← *goal*
  - Compost organic waste
  - Process to recover energy
  - Landfill only what is necessary

## Solid waste goals

- Founded in a vision of sustainability
- Five goals
  - Protect environment, health, conserve resources
  - Follow the State hierarchy of preferred waste management
  - Reduce liability and manage waste cost effectively
  - Encourage responsibility
  - Allocate costs fairly to users



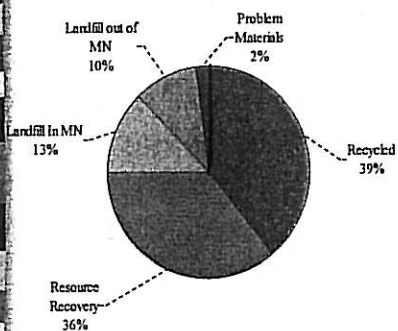
## Isn't that happening?

- Mostly... but consider:
  - From '96 to '00 waste grew by 18%, while population grew by 5%
  - Recycling rates are stagnant or declining
  - There are a lot of resources in what is disposed
  - Market incentives are to dispose, not reduce, reuse, recycle, compost
  - Responsibility is masked
  - Costs are hidden
- Lost opportunities

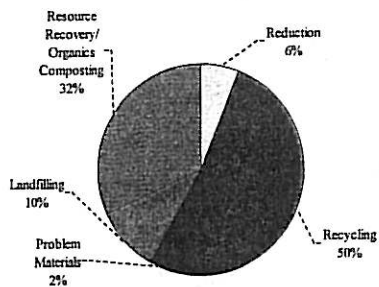
*"market is upside-down"*

## Current and Future Waste Management

2000 Actual

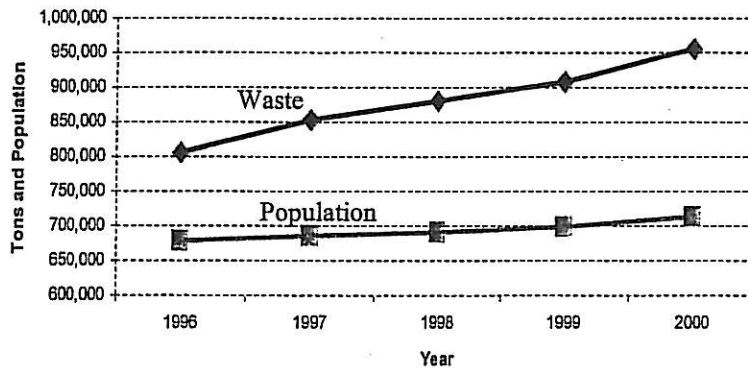


Future



# Waste Generation & Population

Metropolitan Area: Waste Generation and Population




## Lost Resources

There are resources in what's tossed!

- 45% recyclable/ *cans, paper, etc.*  
55% non-recyclable
- 80% combustible/  
20% non-combustible
- 58% compostable/  
42% non-compostable

*only 55% of aluminum cans are recovered by recycling*

*If you pull 1/2 paper going to landfill - fiber of 8 million tons fiber can go thru ~ 7 recycling*



## Why change collection, if the problem is after collection?

- Courts have ruled that hauling companies can take waste anywhere, depending on the market.
- The market favors disposal and the market is not currently in line with the public values, as reflected in State policy.
- A different way of providing collection service can be a way to meet the goals.



## What is Public Collection?

- Public Collection occurs when a city, township or county provides or arranges for collection services for garbage/trash, recyclables or other wastes.
- It will not mean public trucks and crews.
- There is a lot of flexibility available in how public collection could be designed
- Public collection already exists in several forms in Saint Paul and suburbs! \*

*Already exists in many ways in S.P. + Ramsey Co.*



## What have we heard so far?

- Wide variety of opinions
- Some say “yes,” some say “no,” some say they want more info.
- Maintain competition
- A strong value: ability to choose hauler




## What have we heard so far?

- Ensure local <sup>*independent*</sup> companies can stay in business
- Cost and service
- Protect the environment
- Community concerns:
  - Number of trucks (traffic, safety, road wear and tear, fuel use, air pollution)
  - Illegal dumping



## What would it look like?

- Framework has been produced based on input so far, and is for discussion purposes
- Depending on community preference, how different wastes are collected may look quite different than the current system, or it may look the same.



## Framework components – designed to respond to comments

- Protect environment, health, safety
- Communities preference on design
- Maintain healthy competition
- Local haulers stay in business
- Offer choice where community desires it
- Costs not hidden, fair and competitive pricing
- Quality service

## Framework

- Public collection would address
  - Mixed municipal solid waste (“garbage”)
  - Recyclables
  - Yard Waste
  - Other compostable waste
  - Household hazardous waste

About 17  
pages  
+  
indiv. cities

## Framework

- County would establish **service standards**, to assure waste is managed in accordance with plans;
- Counties would partner with cities that already have contracts for service;

*Cities could opt in as we go along*

## Framework

- Counties would create **service zones** for residential, commercial, multi-family services
- Some residential services would be countywide, such as household hazardous waste

*3 categories*

## Framework

- Counties would **contract with private companies** to provide service
- One or more haulers could provide service, depending on community preference
- There are a variety of ways to enter into contracts
  - Direct negotiations
  - Requests for proposals

*All have same rules  
get same rate  
on disposal*

*bidding process  
was specifically  
excluded from  
the framework*

*On service issues,  
where cost is  
excluded*



## Framework

- There are different funding mechanisms possible
  - Hauler billed (similar to current)
  - City-billed (similar to current)
  - Third-party billed

*Funding issues  
are really  
down the road*



## Profiles for Communities

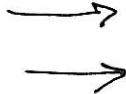
- Existing Conditions
- Potential Options
- For discussion only!





## What do we want from cities?

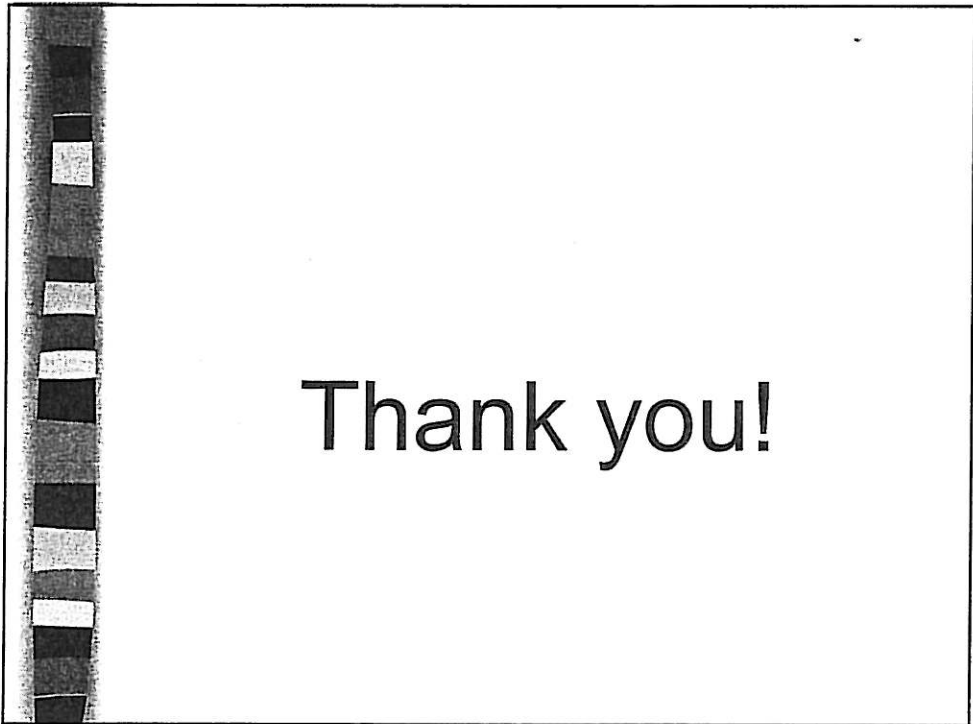
- Thoughts about the goals
- What do you think about the concept of public collection?
- What are the pros/cons?
- What do you think about some of the specifics about public collection?
  - Community preference?
  - The profiles for your community?



## What's next?

- Public comment and discussion
- Complete research
- Evaluate the input and research
- Report to County Boards on April 25

*see web site  
for a lot of  
the research  
they've done.*





# News



## The Exploration of Public Collection in Ramsey and Washington Counties

### A Potential Framework for Public Collection Executive Summary

Ramsey and Washington Counties are exploring whether changing how waste is collected could help reach our communities' environmental, health and safety goals, which are currently not being met. Public collection, when a city, township or county arranges for the collection of solid waste through private haulers, is one option being explored.

No decision has been made on this issue, and the most important part of exploring public collection is to gather input from citizens, businesses, haulers, city officials and others to aid in the decision-making process. From September through December 2001, the Counties collected input from these key groups. Based on this input, the Counties have created a framework to describe in more detail how public collection might work. The Counties are using this framework to gather additional input through March 15.

The following pages describe why public collection is being explored and the potential framework. To submit your comments about the framework please call, write or e-mail:

**Public Collection**  
c/o Ramsey/Washington Counties  
1670 Beam Avenue  
Suite A  
Maplewood, MN 55109  
Voicemail line: 651/773-4476  
Fax: 651/773-4496  
Email: [public.collection@co.ramsey.mn.us](mailto:public.collection@co.ramsey.mn.us)  
Visit our Web site at:  
[www.co.ramsey.mn.us/recovery/Public\\_Collection.htm](http://www.co.ramsey.mn.us/recovery/Public_Collection.htm)

### **What is the problem?**

We are losing ground in protecting our environment, health and safety with our current method of solid waste collection and management. Landfilling has increased, recycling is stagnant or decreasing, resources are being wasted, and too much waste is being generated. For example:

- ✓ From 1996 through 2000 the amount of waste produced in the two counties grew by more than 18 percent, while the population grew by 5 percent.
- ✓ Most of the growth in solid waste has been managed by landfilling.
- ✓ There are huge potential resources in what is thrown away in our trash; in fact, about 70 percent could be recycled or composted.

### **What is causing the problem?**

Large private companies, which control most of the collection market, are driving decisions about what happens to waste after it is collected. These decisions are focused on maximizing profits. Therefore, because it is usually cheapest to put waste in a landfill, more waste has been disposed of in this manner. Changing the collection system may be a way to ensure that more waste is recycled, composted and converted to energy.

### **Why should we care about how waste is disposed?**

In the early 1980s Minnesota discovered that landfills were major polluters, and legislators put state laws in place to prevent future problems. There are 102 closed landfills in Minnesota that have to be dealt with — forever. The Minnesota Pollution Control Agency has estimated that handling these old sites will cost the citizens and businesses of Minnesota almost \$500,000,000 over the next 30 years. The Environmental Protection Agency has found that the barriers that line today's landfills, although designed to protect the environment from contaminants, deteriorate over time.

As a result, the State has required the Counties to make sure that we get as much value out of waste as we can, and try to keep landfilling to a minimum.

### **What is the answer?**

To ensure that waste is managed properly to protect our environment, health and safety, we must make sure the market has incentives to reduce, reuse, recycle and compost; convert remaining trash to energy; and judiciously use landfills. We know the current system of waste collection does not do this.

At the same time, we must ensure that residents and businesses are receiving top-quality waste collection services at a competitive price. With your help, Ramsey and Washington Counties are in the process of evaluating whether public collection would help us accomplish these goals.

### **What have you heard so far?**

The Counties have been talking with residents, cities and townships, Saint Paul district councils, businesses, and waste haulers. As with any proposed change, there is a wide variety of opinions. Some people have said that they are "for" or "against"

public collection based on what they already know. Other people have asked for more information. Below is a summary of what we have heard.

- ✓ Maintain competition. Do not allow one or two large companies to control the market.
- ✓ Ensure that local/independent haulers stay in business.
- ✓ The ability of a customer to choose a waste hauler is a strongly held value among some people.
- ✓ Cost and service are important factors.
- ✓ The system should be designed to protect the environment, as well as promote recycling and composting.
- ✓ The system should address neighborhood concerns such as too many trucks on the street and illegal dumping.

### **How would public collection affect me if it was implemented?**

The direct impact could be as much or as little as your community decides. Every community would have the ability to design a system that improves the environment and is consumer friendly. Your community could decide to have several haulers or very few. Some communities have the desire to reduce truck traffic and noise; others want to ensure that there are several haulers from which to choose.

An advantage is that the public will have the opportunity to decide where the waste at your residence or place of work goes and is handled so that we can protect the environment and our health and safety. In fact, Minnesota law states that it is the counties that are responsible for protecting the environment, health and safety of their residents.

### **What would public collection look like?**

A framework for public collection has been developed based on the input the Counties have received so far. The framework will continue to be revised and evaluated based on further public input.

Based on the input received, seven components were created that would guide how public collection would be implemented.

- ✓ Protect the environment, health and safety of the community by managing the waste stream and using waste as a resource.
- ✓ Individual communities retain the power to design their own system.
- ✓ Healthy competition between haulers is maintained.
- ✓ Local/independent haulers can stay/remain in business.
- ✓ Offer a choice of haulers where the community desires it; fewer haulers on the street where the community desires it.
- ✓ Fair and competitive prices.
- ✓ Top-quality service.

The framework envisions a structure with these parts:

- ✓ The public collection system would address mixed municipal solid waste (what most people call “garbage” or “trash”), recyclables, yard waste, brush, bulky wastes (such as furniture), compostable wastes, and household hazardous wastes.
- ✓ The Counties would establish service standards to assure that waste is handled according to the County's specifications.
- ✓ In those cities/townships where the community already has contracts in place for service, the Counties will partner with those communities.
- ✓ The Counties would contract with private haulers to provide service for residential, commercial and multifamily housing.
- ✓ The Counties would create service zones for residential garbage and recycling services, generally along the lines of cities/townships and planning districts in Saint Paul, in which services would be provided.
- ✓ The Counties would create service zones that are countywide for commercial services. Multiple haulers would offer service on a competitive basis in these large zones.
- ✓ One or more haulers could provide residential service in a zone, depending on community preference.
- ✓ The Counties could use a variety of methods, depending on community preference, to determine the most appropriate hauler or haulers.
- ✓ There are different funding mechanisms available.
- ✓ Some residential services would be countywide, such as household hazardous waste collection sites, certain community clean-up events, and yard waste drop-off site.

# 20 - Year Design Lane Cumulative ESAL Calculation

Flexible ESAL (BESAL) Factors for the Design - Lane

**Project Name:** TH10,IRC  
**Project Location:** TH24 to TH25  
**Company Project Number:** 013260J  
**Date:** 14-Nov-01  
**County Proj. No.:** NA  
**State Aid Proj. No.:** NA  
**State Proj. No.:** NA

**INSTRUCTIONS:**

1. Input "AADT" value (this value is not required if "Base Year AADT" values are known, column c).
2. Input "Base Year AADT" values, if known, in column c. If values are unknown, input "Percent of AADT" listed below into column b.
3. Input "Design Lane Factor" (iii).

X = Hand Input

Base Year = 2001  
 AADT = Average Daily Traffic (a) = 11000  
 Design Year = 2025  
 Year Growth Factor (GF) = 1.413

## VEHICLE CLASS PERCENT OF AADT (Analysis of 1983-1989 Data - Table 4-4.2)

Vehicle Class	Rural	T.H. System	7 County Metro	If "Base Year AADT" values are known	Notes:
Cars, Pick-ups	94.1	88.9	92.9	89.3	
Single Unit (SU) - 2 axle, 6 tire *	2.6	2.7	2.2	1.6	
Single Unit (SU) - 3 and 4 axle **	1.7	1.5	1	1.4	
Tractor Semi-trailer (TST) - 3 axle	0	0.1	0.2	0.8	
Tractor Semi-trailer (TST) - 4 axle	0.1	0.2	0.2	0	
Tractor Semi-trailer (TST) - 5 axle	0.5	6.1	3.2	4.6	
Trucks with Trailers and Buses ***	1	0.4	0.3	0.5	
Twin Trailers	0	0.1	0	0.3	

## DESIGN LANE CUMULATIVE ESAL

Vehicle Class	Percent of AADT (see above)	Base Year AADT (Two-Way)	Flexible ESAL Factors	Base Year ADL	Design Year AADT (Two-Way)	Design Year ADL
	(b)	a x b = (c)	(d)	c x d = (e)	c x GF = (f)	d x f = (g)
Cars, Pick-ups	88.9	9779	0.0007	6.8	13818	9.7
Single Unit (SU) - 2 axle, 6 tire *	2.7	297	0.25	74.3	420	105.0
Single Unit (SU) - 3 and 4 axle **	1.5	165	0.58	95.7	233	135.1
Tractor Semi-trailer (TST) - 3 axle	0.1	11	0.39	4.3	16	6.2
Tractor Semi-trailer (TST) - 4 axle	0.2	22	0.51	11.2	31	15.8
Tractor Semi-trailer (TST) - 5 axle	6.1	671	1.13	758.2	948	1071.2
Trucks with Trailers and Buses ***	0.4	44	1.25	55	62	77.5
Twin Trailers	0.1	11	2.40	26.4	16	38.4
<b>TOTALS</b>		<b>11000</b>		<b>1032</b>	<b>15544</b>	<b>1458.9</b>

**ESAL Factors (d)**  
 \* Use 0.80 for 2 axle garbage trucks.  
 \*\* Use 0.91 for sugar beet trucks if on a sugar beet route.  
 \*\*\* Use 1.25 for MTC buses otherwise use 0.57.

Base yr HCADT: 1221  
 Design yr HCADT: 1726

- (i) (Base Year ADL - Design Year ADL)/2 = **1245** (rounded)
- (ii) Number of days in 20 years (7305) x (i) = **9,094,725**
- (iii) Design Lane Factor ( See factors below) x (ii) = **0.46** → **4,092,626**

Single direction		Two-Way traffic	
# of lanes	factor	# of lanes	factor
1	1.00	2	0.50
2	0.90	4	0.45
3	0.70	6	0.35

(iv) Load limit increase factor (See factor) **1.00** → **4,092,626**

Note: Use a 12 percent increase for 20-year cumulative ESAL forecasts in anticipation of future relaxation.

(v) Increase for 10 Ton Design. (See factor) **1.06** → **4,338,184**

Note: For 9 Ton Design use a factor of 1.0. For 10 Ton Design use a factor of 1.04 to 1.08. Depends on specific site conditions as determined by the Road Engineer.

**Cumulative 20-year design lane flexible ESAL** **4,338,184**

# Bituminous Pavement with Aggregate Base

Using Flexible ESAL (BESAL) Factors for the Design - Lane

Project Name: TH10 IRC  
 Project Location: TH24 to TH25  
 Project Number: 813260J  
 Date: 14-Nov-01

County Proj. No.: NA  
 State Aid Proj. No.: NA  
 State Proj. No.: NA

X  Hand Input

20 - Year Design ESALs (a) = **4,338,184**

Design R Value =

70

## Design Criterion For Bituminous Pavements (See Table 5-3.4, Geotech & Pavement Manual for General Notes)

ESALS Design Lane x 10 <sup>6</sup>		BASE	BINDER/ LEVEL	WEAR	MIX DESIGNATION example: 47BBB50070X <small>type of aggregate no. blows % crush AC den</small>
< 1 and SHOULDERS	Specify =>	31BBB50000Y	31BIB50000Y 31LVB5000Y	31WEA50000Y	31 BB A 50 000 X=85/100 41 BI B 75 055 Y=120/150 47 LV C 75 070 Z=200/300 51 WE SH
	Contractor's Option to Supply	Type 32 Agg. Size A/C	Type 32	Type 32	
1 - 3	Specify =>	31BBB50000Y	41BIB60055Y 41LVB60055Y	41WEA50055Y	No Type 31 or Type 32 mixture shall be placed in upper 3-inches.
	Contractor's Option to Supply	Type 32 Agg. Size A/C	Type 42	Type 42	
3 - 10	Specify =>	31BBB50000Y	47BIB60070X 47LVB60070X	47WEA75070X	No Type 31 or Type 32 mixture shall be placed in upper 4-inches. Special Requirements for Type 47/48 mixes apply.
	Contractor's Option to Supply	Type 32 Agg. Size A/C	Type 48	Type 48	
10 >	Specify =>	41BBB50055Y	61BIB75100X 61LVB75100X	61WEA75100X	No Type 41 or Type 42 mixture shall be placed in upper 4-inches. Class B agg. allowed in non-wear provided they meet Quality Requirements of Spec. 3149.2D2c including the #200 insoluble residue.
	Contractor's Option to Supply	Type 41 Agg. Size A	None	None	

## Granular Equivalent (G.E.) Factors (See Table 5-3.3 from Mn/DOT Geotech & Pavement Manual for General Notes)

Material	Specification	G.E. Factors	Notes
Plant-mix Bituminous Pavement	Type 41, 47 & 61 (All Courses)	Spec. 2331 / 40	All WEAR & BINDER courses shall be 1.5" thick minimum.
Plant-mix Bituminous Pavement	Type 31 (All Courses)	Spec. 2331 / 40	
Aggregate Base	Cl. 5 or Cl. 6	Spec. 3138	* Where the subgrade consists of granular material, the District Materials and/or Soils Engineer may recommend the treatment of the upper portion of the selected granular material with 150 lb/yd <sup>3</sup> or more of stabilizing agg. Spec. 3149.2C.
Aggregate Base	Cl. 3 or Cl. 4	Spec. 3138	
Selected Granular Material *		Spec. 3149	

### Theoretical Design

From Figure 6-3.6 Bituminous Pavement Design Chart (Aggregate Base) Granular Equivalents (G.E.) in Inches.

Min. Bituminous Line Pt. "A" = 0.0  
 Min. Base Line Pt. "C" = 20.0  
 Pt. "B" = 14.0  
 Pt. "D" = 22.5

(1) In order to determine the minimum required wearing and binder course for the project, refer to Table 5-3.4, and select the thickness and mixture type based on the design ESAL.

Type	Wearing Course Mixture	Inches of material	G.E. Factor	G.E. Equivalent
Type 47	47WEA75070X	2.00	2.25	4.50
Type 47	47BIB50070X	2.50	2.25	5.63

(2) Subtract appropriate wearing and binder G.E. value from min. bituminous (Pt. "B" G.E. (1)).  
 14.0 - 10.13 = 3.88

Type	Base Course Mixture	Inches of material	G.E. Factor	G.E. Equivalent
Type 31	31BBB50000Y	6.00	2.00	3.88

(3) Aggregate Base, or bituminous base required, (Pt. "C" - Pt. "B") = 6.00  
 Aggregate Base, Class 5 / 6 G.E. = 6.00  
 or convert aggregate to additional bituminous base (full depth design)

Type	Bituminous Base G.E.	Inches of material	G.E. Factor	G.E. Equivalent
Class 3 / 4	31BBB50000Y	3.00	2.00	6.00

(4) G.E. of Class 4 aggregate base, (Pt. "D" - Pt. "C") = 2.5  
 Aggregate Base, Class 3 / 4, 2.50

Proposed Design Option	Inches of material	G.E. Factor	G.E. Equivalent
Option 1	3.33	0.75	2.50

Course	Thickness (in)	G.E. Factor	Actual G.E. (in)	Theo. Design (In)	Remarks
Wearing Course	2.00	2.25	4.50	4.50	
Binder Course	2.00	2.25	4.50	5.63	
Base Course	4.00	2.00	8.00	3.88	
Class 5 / 6	6.00	1.00	6.00	6.00	
Class 3 / 4	0.00	0.75	0.00	2.50	
TOTAL			23.00	22.50	
Select Granular (3149.2b2)	0.00	0.50	0.00		
Resulting Design Totals	14.00		23.00	22.50	Minimum design section for 20-year design lane BESAL shall be <= 7 million = 30-inches. > 7 million = 36-inches (see Tech Memo 95-23-CME-12)



# T<sup>2</sup> MINNESOTA TECHNOLOGY TRANSFER PROGRAM

## Technology Exchange Newsletter

A Newsletter of the

Minnesota Technology Transfer (T<sup>2</sup>) Program, Local Technical  
Assistance Program (LTAP)

October–December 2001

### Better accuracy in predicting ESAL levels on county roads

On most roads, the type of vehicle traveling on the road is very diverse, so to simplify the design process, engineers use a unit called an equivalent single axle load (ESAL). This measurement allows the amount of traffic to be described using one common term by assigning a proportion of an ESAL to every vehicle weight and type. A recent study found that the assumed vehicle distribution provided by Mn/DOT has led to significantly over or under-predicted ESAL levels. By having more accurate measurements, pavement rehabilitation and design methodologies would improve, since inaccurate predictions can lead to ineffective use of resources.

A common method for predicting ESALs for trunk highways is based upon the expected traffic volume, vehicle type distribution, truck equivalency factors, and growth factors for a given road segment. A measurement for statewide ESAL levels was provided for county State Aid highways (CSAH) based on a Mn/DOT calculated average.



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To determine correct ESAL levels, two researchers in the University of Minnesota's Civil Engineering department – Gene Skok and David Timm – analyzed 29 county road sites from Douglas, Kandyohi, and Olmsted Counties in the summers of 1998 and 1999.

The researchers found that Mn/DOT's statewide average often gave inaccurate predicted ESAL levels for county State Aid highways. In 36 of the 53 road sites studied, the assumed distribution under-predicted the measured ESALs, and the greatest discrepancy between the measured and assumed distributions was in the frequency of semis with three, four, and five or more axles. Since the five and greater axle semis have the highest ESAL factor, they have the largest impact on the ESAL calculation. To establish a reliable source of classification data, the researchers recommend that vehicle classification studies should be done at the CSAH level more frequently.

In addition to this study, the researchers completed a pilot vehicle classification project in the three test counties. This project was to serve as a model for all of Minnesota before statewide implementation of the study's recommendations.

The culmination of this study will be a "best practices" manual, developed by Mn/DOT, for low-volume road construction based on the new estimates for ESALs on the county State Aid highway level. Stay tuned to the *Exchange* for updates about this research and the availability of the new manual.

—Erin Streff

North Star Safety Workshop

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