

Transition and Revitalization of Minnesota's First Waste to Energy Facility

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- Facility Transition
- Regional Program – Institutional Arrangements
- LEED Certification
- Benefits and Long-Term Expectations

Current Facility



City of Red Wing – Solid Waste History

- City Starts Residential Collection1948
- WTE Feasibility Study BeginsJuly 1978
- WTE Design BeginsSeptember 1979
- Project FinancingOctober 1980
- MPCA Issues WTE PermitJanuary 1981
- WTE Ribbon Burning October 1982
- Pollution Control UpgradeJuly 1997
- Voluntary Delivery Agreements...November 2006
- Ordinance Revision (CESC).....March 2007
- Ash Landfill Expansion.....July 2007

Five -Year Project History

Original Grant Application Submitted

- City Resolution 4678 to apply for CAP grant September 24, 2001
- Preliminary Grant submitted December 10, 2001
- Total Cost \$ 4,120,000 with City pledging \$2,110,000
- Excluding backpressure turbine

Grant Funding Cycle – 2004

- Legislature did not fund

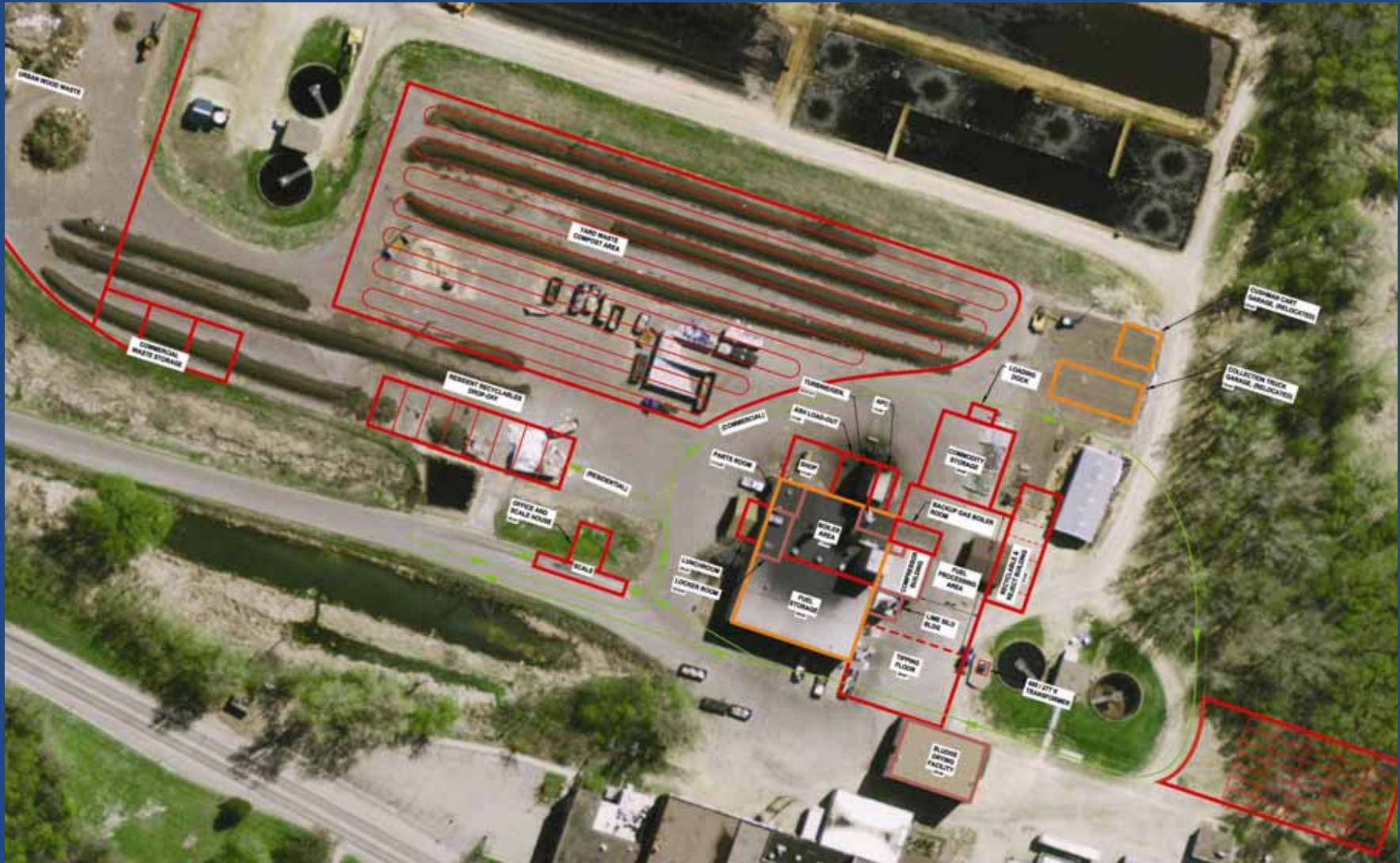
Grant Funding Cycle – 2005

- Legislative Approval naming Red Wing project for maximum of \$2,000,000 in funding
- City obtains “one year” extension to complete waste assurance program
- Final Grant Application due October 1, 2006

Final Grant Application Preparation

- TKDA began preparation September, 2006
- Extension granted for completion
- Submittal date January, 2007

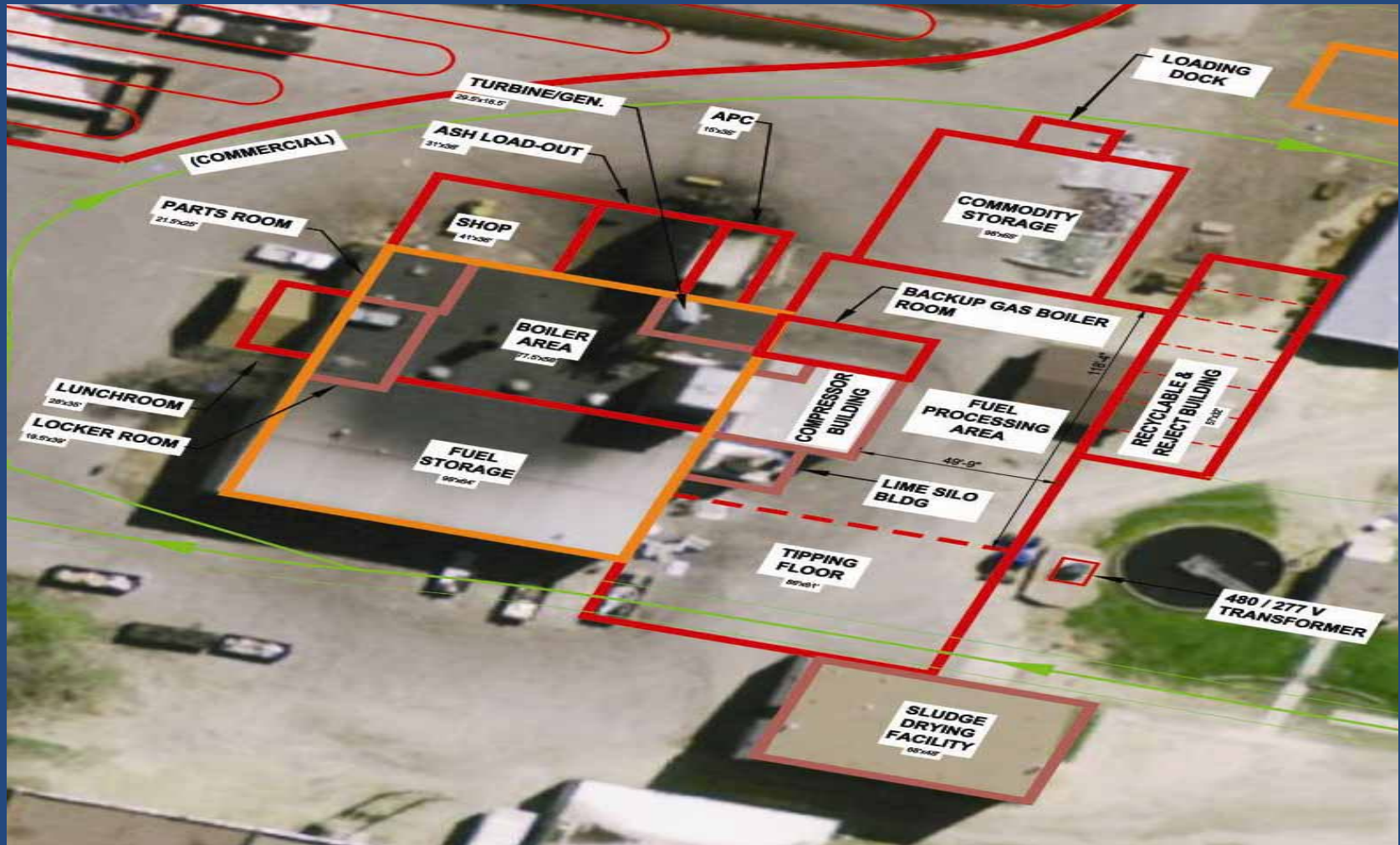
Integrated Solid Waste Campus



Overview of Improvements

- New Tipping Floor and Building
- New MRF and Waste Separation Process Line
- New Backpressure Turbine
- Back-up Boilers and Diesel Generator
- New Scale and Administration Building
- New Ash System and Load-out Area
- New Maintenance Shop
- Reuse of Tipping Floor for “Clean Fuel Storage”
- Upgrade to Control Room, Lunch Room, and WTE Building

Facility Changes



Technical Impacts of Changes

	Original Design	Expectation for New System
Operating Cycle	5 days per week	7 days per week (24/7)
WTE Availability	54%	70-80%
Facility Throughput	15,000 TPY – 72 TPD	29,000 TPY – 120 TPD
Waste Heating Value	4,500 Btu/lb	5,200 – 5,500 Btu/lb
Fuel Storage	200 Tons	325 Tons
Bypass	3,800 TPY	0 – 6 200 TPY
Recycled Materials	None	3,500 TPY
Ash Quantity	6,450 TPY (wet)	5,379 TPY (wet)
Facility Cost	\$2,500,000 (1982)	\$4,945,000
Number of Employees	12 FTE	21 FTE
MN CAP Grant	None	\$2,000,000

Project Benefits

Reduction in glass, aluminum, metals and grit should result in:

- 4 – 6 week increase in maintenance intervals (reduced down time from weekly to monthly)
- Potential for improved air emissions due to reduced metal concentrations
- Increase Ash Landfill life due to removal of at least 500 TPY metals

Increase in waste throughput and revenues

- Fuel cleaning will require 90 TPD (4,500 Btu) Waste to obtain required 78 TPD (5200 Btu) of Clean Fuel to run WTE at 15,000 pound per hour of steam
- Additional 12 TPD @ 56.50 is \$678 per day or \$196,000 annually
- Combined curbside collected and recovered material increase recyclable revenues to City
- Potential to process greater quantities of recyclables for delivery to markets

Bypass decreased approximately 20 % due to reduced down time and removal of recyclables

Project Schedule

Activity	Anticipated Time Schedule
Prepare Final Grant Application	September – November 2006
Final OEA Application Submittal	January 2007
City Council Resolution to Submit Grant	February 2007
Review and Clarification of Grant	March 2007
Grant Application Award/ Agreement Execution	December 2006
Final Design, Plans and Specifications	December 2008 – April 2008
Financing and Bond Council	January 2008
Bonds Issued	June 2008
MPCA Permitting and Environmental Review	November 2007 – May 2008
Issuance of the MPCA Permit	June 2008
Equipment SOQ and RFP	February - April 2008
General Contractor and Building RFP	April - June 2008
Construction Begins	August 2008
Construction Substantially Complete	May 2009
Equipment Start-up and Testing	May 2009
Commercial Acceptance	July 2009
Submit Final Pay Request to State	August 2009
Submit 1 st Annual Report	February 2010

Institutional Arrangements

Challenges:

- City Ordinance
- Memorandum of Understanding

LEED Certification



- **LEED**ing the way in Minnesota
(**L**eadership in **E**nergy and **E**nvironmental **D**esign)
 - 1st FFC & MRF feeding a WTE to be LEED Registered
 - 9th solid waste type facility to be registered in U.S.
 - 2 recycling centers
 - 3 administration buildings
 - 3 transfer stations
 - Goal : “Certified”, try to obtain “Silver”

LEED-NC: New Construction

- Rating System –Out of a possible 69 points:

- Certified: 26-32 points
- Silver: 33-38 points
- Gold: 39-51 points
- Platinum: 52-69 points

Plus 7 prerequisites that must be met for rating eligibility.

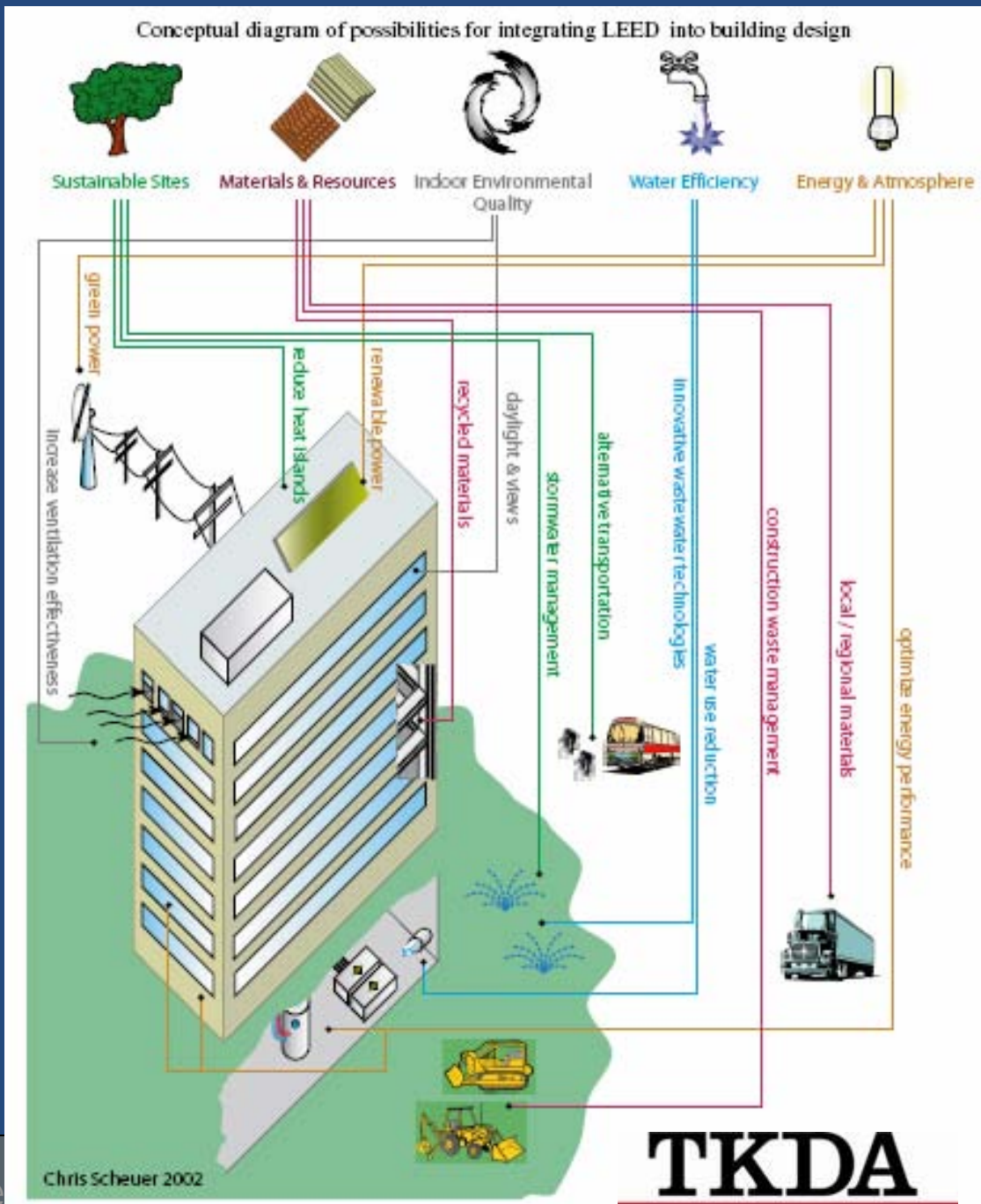
*The higher the rating level achieved, the more prestige for marketing and generally the greater the energy savings. Some states mandate a minimum LEED level for their government buildings.

LEED-NC/EB

Green Building Rating System – Criteria Categories

1. Sustainable Sites
2. Water Efficiency
3. Energy & Atmosphere
4. Materials & Resources
5. Indoor Environmental Quality
6. Innovation & Design Process

(slide courtesy Rob Dean, AIA, CSI, CCS, BSD)



Front-End Fuel



What does this facility mean to the City?

- Potential to process waste for 24/7 Operation.
- Cleaner, higher BTU fuel, easier to manage for permit limits.
- Expandability for the future – up to 100,000 tons/yr.
- Capabilities to react to commodity market. Pull higher value commodities by adding sort stations.
- Integration of more special waste processing. Higher revenue fuel \$100 to \$300 per ton.
- Help meet MPCA goals to increase waste processing by 35% statewide by enhancing existing facilities.

The Future of our Communities Solid Waste

- Addition of this facility will be one more step up the state hierarchy and strengthen the integrated solid waste operation of the City.
- The community can triple, in size or more without exceeding processing capacity.
- More solid waste partners can be added. Other Goodhue County cities and townships individually, other non-Goodhue County cities like Farmington, and county partnerships with Goodhue, Wabasha, and Dakota Counties.
- A solid waste management system that integrates all the tools for sustaining and enhancing environmentally responsible operations for today, tomorrow, and for our children and those that follow us.
- Possible Interstate Regional Class A BioSolids Drying Operation.