

Why Study MSW Management in NYC?

- ✓ Municipal Solid Waste (MSW) management is a problem of growing importance in NYC
- ✓ It is important to quantify and compare environmental impacts of different waste management options

Practical MSW Management Options

Disposition in landfills or in WTE plants

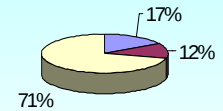
Study Objective

To use quantitative **Life Cycle Assessment** to compare environmental impacts of different landfilling and WTE scenarios

New York City MSW Situation

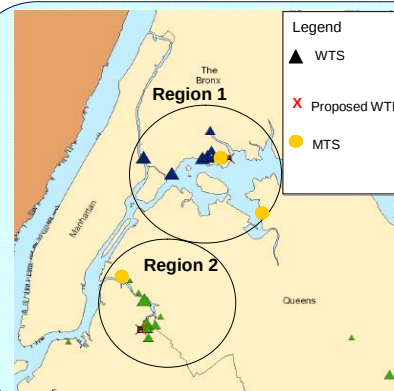
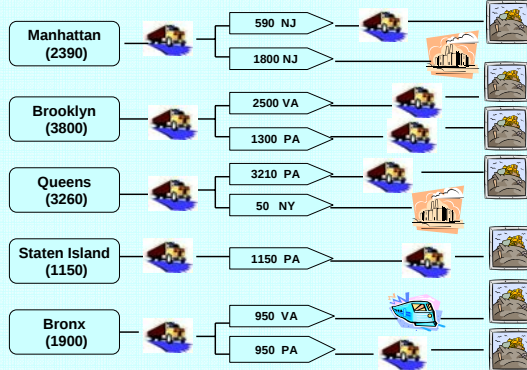
Population : 8 Million
MSW Exported : 12,500 tpd
MSW Collected: 4.5 Million tons
Fee : \$75 per ton

Distribution of MSW in NYC



Legend: Recycled (blue), Combusted (red), Landfilled (yellow)

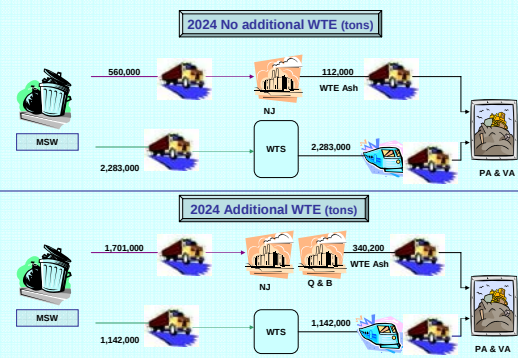
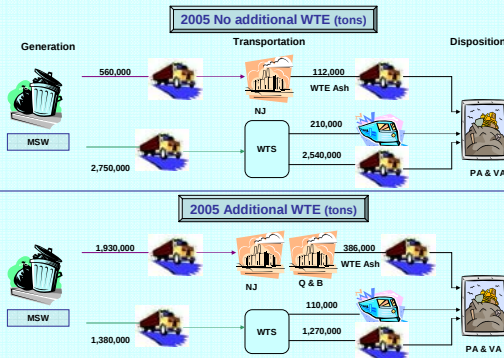
Collection & Disposition Non-Recyclable Residential MSW (tpd)



✓ WTE can be placed in Region 1 and 2

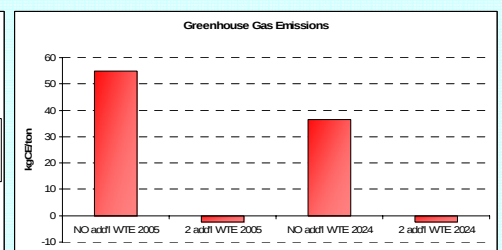
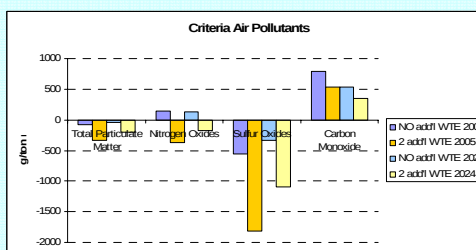
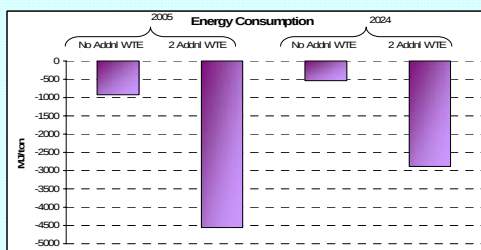
✓ Can offset some of current WTS

✓ Use MTS and barge/rail to transport WTE ash



Results

- ✓ Primary Energy Consumption - MJ/ton MSW
- ✓ Criteria Air Pollutants (PM, NOx, SOx, CO) - g/ton MSW
- ✓ Greenhouse Gas Emissions - kgCE/ton



Conclusion

WTE options have lower impacts than landfills due to lower resource use:

- ✓ Offsetting of grid electricity
- ✓ WTE scenarios could contribute towards improving harder-to-quantify impacts, e.g.: odors

Future Work

- ✓ Improve unit process data
- ✓ Include alternative impact assessment methods
- ✓ Examine comparisons in other areas
- ✓ Evaluate other WTE technologies