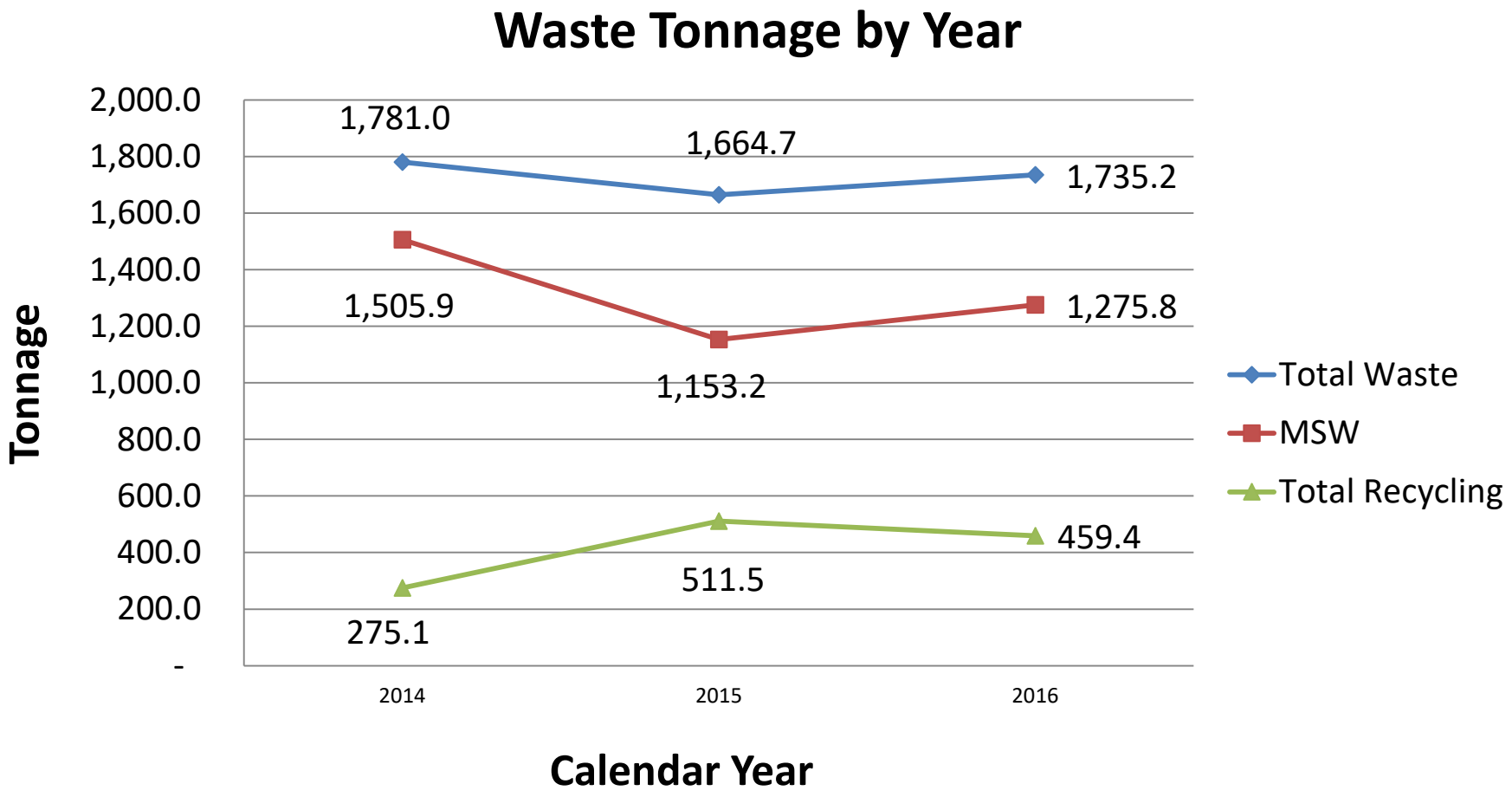
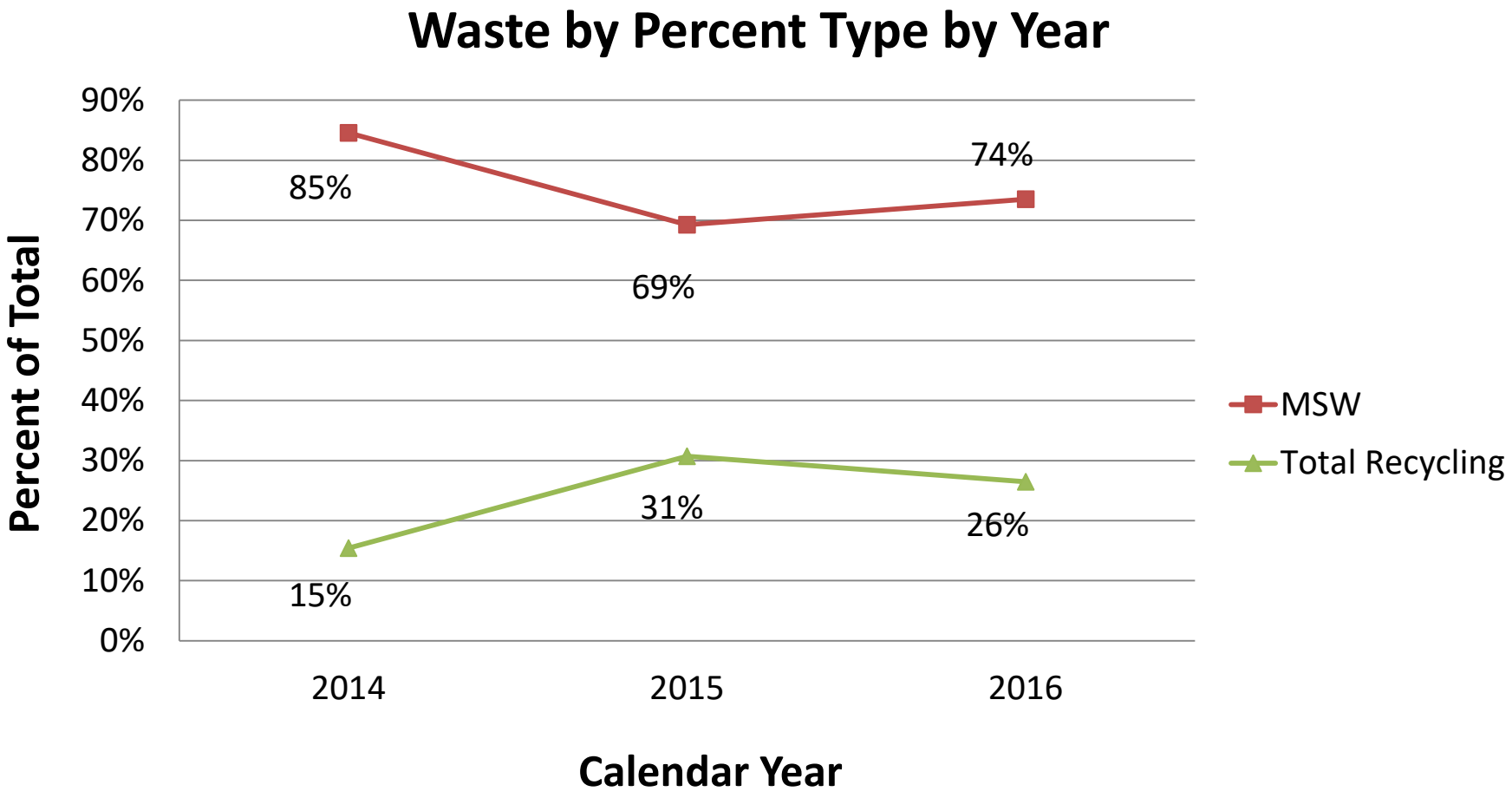
Charge: Examine the environmental and financial implications of diverting paper, composting, and comingle recycling to the local waste to energy incineration plant.

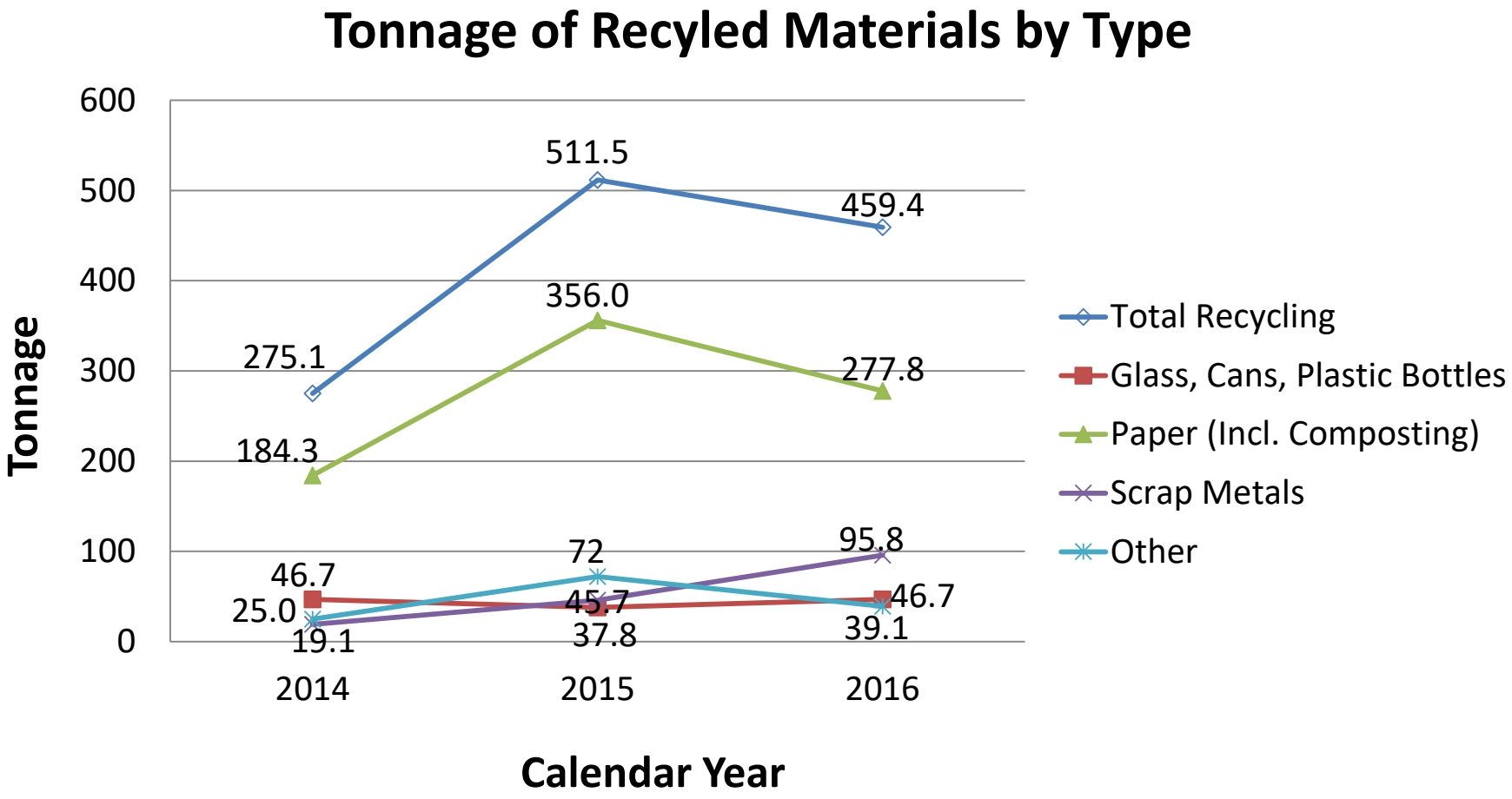
Existing Condition- Total Waste



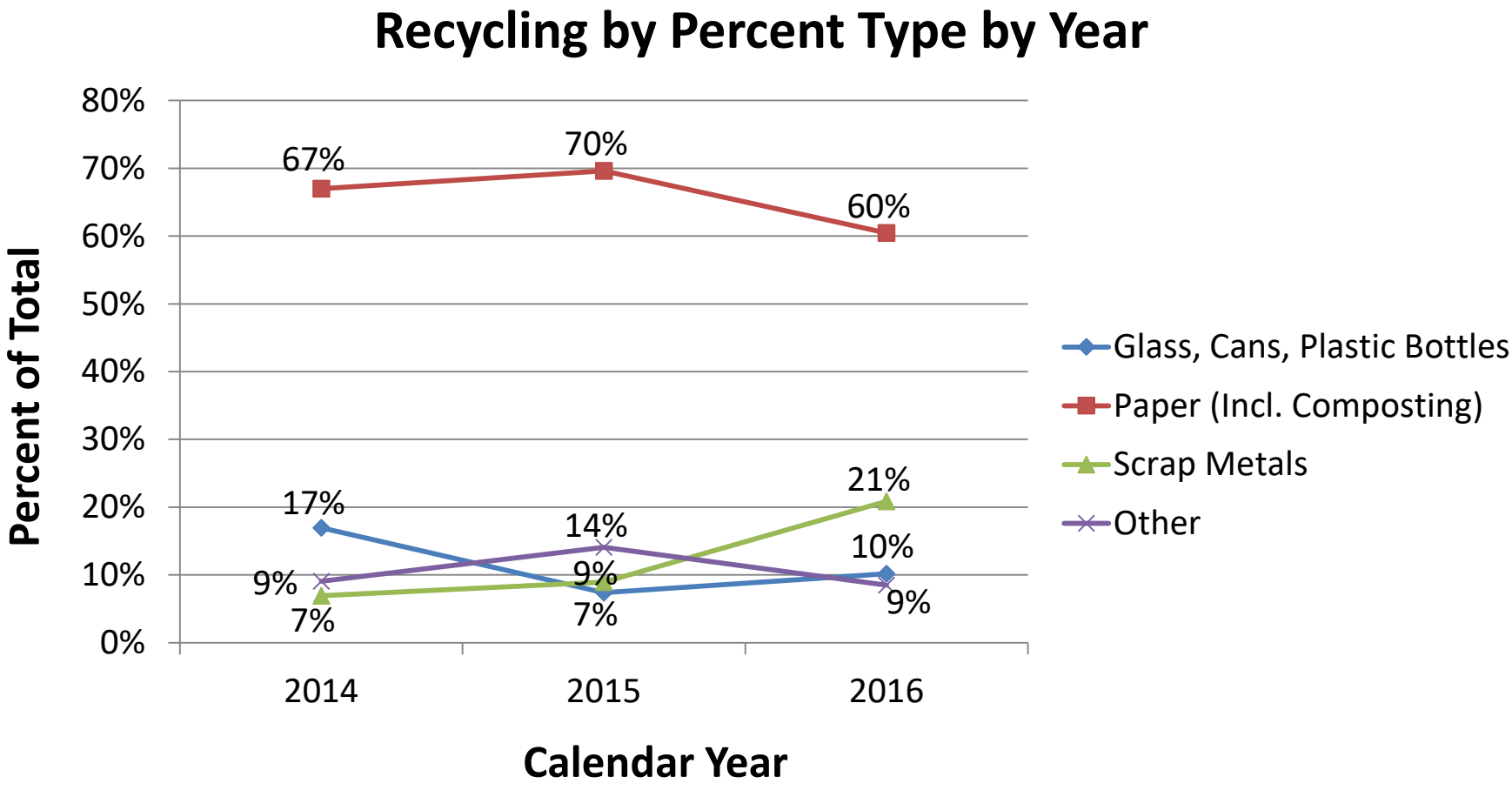
Existing Condition- Total Waste



Existing Condition- Recycled Waste



Existing Condition- Recycled Waste



Environmental Impact of WTE by Fuel Source

- Life Cycle Cost Analysis Comparisons
  - In every study we reviewed recycling, when compared to landfilling, was said to create lower air emissions including lower life cycle GHG emissions.
  - In most studies recycling, when compared WTE, was also said to create lower air emissions including lower life cycle GHG emissions.
  - Not all studies considered all variables

Environmental Impact of WTE by Fuel Source

- One study which reviews 9 different LCAs including 73 different scenarios found that most scenarios favored recycling paper and cardboard over WTE.

European Environment Agency (EEA) (2005). Paper and cardboard — recovery or disposal? Review of life cycle assessment and cost-benefit analysis on the recovery and disposal of paper and cardboard. Retrieved from: http://www.pedz.uni-mannheim.de/daten/edz-bn/eua/06/technical_rep_5_2006.pdf

- Other studies found similar results but showed that the benefits of recycling paper products and plastics were marginal or non existent compared to WTE in some conditions.

Merrild, H., Larsen, A. W., & Christensen, T. H. (2012). Assessing recycling versus incineration of key materials in municipal waste: the importance of efficient energy recovery and transport distances. *Waste management*, *32*(5), 1009-1018. Retrieved from: https://www.sciencedirect.com/science/article/pii/S0956053X11005952

A Cost-effectiveness Analysis for Incineration or Recycling of Dutch Household Plastic Waste Raymond Gradus-Paul Nillesen-Elbert Dijkgraaf-Rick Koppen - Ecological Economics - 2017

Health Impacts of WTE

- Summary from a 2008 British Study
  - Higher rates of cancer and birth defects found around municipal waste incinerators.
  - Increased particulate pollution known to cause cardiovascular mortality; lung cancer; asthma, and COPD
  - Increases in heavy metals emissions know to cause neurological issues, particularly during early developmental periods.

Thompson, J., Anthony, H. (2008, June). The Health Effects of Waste Incinerators: 4th Report of the British Society for Ecological Medicine. Second Edition.

Cost Savings From Proposal

Incineration Added Hauling Costs		
Incineration Cost	$	117,088
Incineration and composting cost	$	105,906
Annual Added Cost	**$**	**11,181**
Operating Savings		
1 Moving and Storage Specialist	$	32,099
Benefits (43%)	$	13,803
Maintenance (Trucks+Equip)	$	4,000
Fuel	$	600
Annual Savings	**$**	**50,502**
Total Annual Savings	$	39,320
Carbon Offsets	$	(21,526)
Net Annual Savings	**$**	**17,794**

One Time Savings		
2 Trucks	$	4,000
Bailer	$	10,000
Shredder	$	25,000
Total One Time Savings	**$**	**39,000**