

Landfill NIMBY and Systems Engineering: A Paradigm for Urban Planning

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Justifiable NIMBY

“Not in My Backyard!”

- Image of “NIMBYs”
 - Self-Centered Citizens Intent on Preventing a Proposed or Expanded Landfill in Their Area
 - Unfortunate Perception
- Many “NIMBY” Concerns Justified
 - As Currently Sited, Constructed, Operated, and Closed, Landfills Are Poor Neighbors to Those within Spheres of Influence – Several Miles
 - Everyone Becomes a “NIMBY” When Landfill Proposed for His Area

Adverse Impacts of “Dry Tomb” Landfills on Adjacent/Nearby Property Owners/Users

- Public Health, Economic & Aesthetic Aspects of Groundwater & Surface Water Quality
- Methane & VOC Migration
 - Public Health Hazards, Explosions, Toxicity to Plants
- Illegal Roadside Dumping and Litter near Landfill
- Truck Traffic
- Noise
- Dust and Wind-Blown Litter
- Odors
- Vectors, Insects, Rodents, Birds
- Condemnation of Adjacent/Nearby Property for Future Land Uses
- Decrease in Property Values
- Impaired Views

“Pacification” of NIMBYs

- US EPA Stated as “Other Benefits” in October 9, 1991 Federal Register Subtitle D Regulations (US EPA, 1991)
 - “First, EPA Believes That the Promulgation of Federal Municipal Solid Waste Landfill Criteria Will Increase Public Confidence That Landfills Are Designed to Protect Human Health and the Environment. EPA Believes That This Increased Confidence Will Reduce Opposition to Landfills and Make the Siting of New Landfills Less Difficult.”*
- Reflects Lack of Understanding or Reliable Reporting on Legitimate NIMBY Concerns
 - “PR” – Gives Appearance of Greater Protection
- Subtitle D Landfilling Requirements Do Not Address Key Justifiable NIMBY Concerns

The Problem

- Landfill Siting
- Dry Tomb Landfilling Approach

Landfill Siting Process Contributes to Justifiable NIMBY

- Originally & Sometimes Today, Siting Decisions Largely Political
- Pseudo-Technical Site Selection Committee
 - Establishes Site-Specific Selection Parameters
 - Groundwater Protection – *Public Told Landfill Design Will Protect, When in Fact, It Will Only Postpone*
 - Distance from Community – *Often Inadequate to Prevent Significant Adverse Impacts on Nearby Property Owners/Users*
 - Aboriginal Artifacts, etc.
 - Assigns Arbitrary Rank for Each Parameter on Scale of 1-10 – May Be Inadequate Information to Assess Potential Problems of Site
 - Ranks Sites Based on Layperson Committee Members' Understanding, Preconceptions & Persuasion
- Site Selection Easily Manipulated by Controlling Information Provided to Site Selection Committee

US EPA Subtitle D Landfilling Approach

- “Dry Tomb” Approach – Plastic Sheeting and Compacted Soil Liners and Cover to Try to Keep Wastes “Dry” Forever
 - Flawed Technology
 - At Best, Postpones Groundwater Pollution
 - Does Not Prevent Groundwater Pollution
- Adequacy of Current Regulations to Address NIMBY Concerns
 - Do Not Address Most NIMBY Issues
 - Only Postpone Groundwater Pollution

Addressing Justifiable NIMBY Concerns

- Appropriately Address Issues of
 - Public Health & Welfare
 - Groundwater Quality
 - Near-Term and Long-Term Protection
 - Landfill Siting

Develop Appropriate Landfill Siting System

- Objectives:
 - Manage Municipal Solid Waste – Develop a Landfill
 - Comply with Regulations
 - Minimize Costs
 - Charge Waste Generators Full Cost of MSW Management
- Constraints:
 - MSW Recycling
 - Legal Requirements

Develop Appropriate Landfill Siting System

- Establish Priorities for Control of Landfill
 - Active Life and Post-Closure Impacts
 - Identify Each Potential Impact
 - Define How Each Potential Impact Will Be Addressed (e.g., for Odors: What Land Buffer Will Be Provided? How Will Property Values Be Protected? etc.)
- If Groundwater Protection Is Required for as Long as Waste Is a Threat
 - Site Subtitle D Landfills Only Where Groundwater Pollution Is Truly Not Possible, Now or in Perpetuity
 - Treat Wastes to Remove Leachable Components Prior to Disposal (e.g., Use Fermentation/Leaching Wet-Cell Landfill)

Address Landfill Impacts Active-Life & Post-Closure

- Require Adequate Landfill Owner-Owned Land Buffer to Dissipate & Dilute Odors and Other Siting Impacts
 - Cost of Acquisition of Additional Land Part of the Cost of Landfilling
- Abandon Dry Tomb Landfilling Approach
 - Treat Wastes Prior to Burial to Remove Components That Represent Long-Term Threats to Groundwater Quality

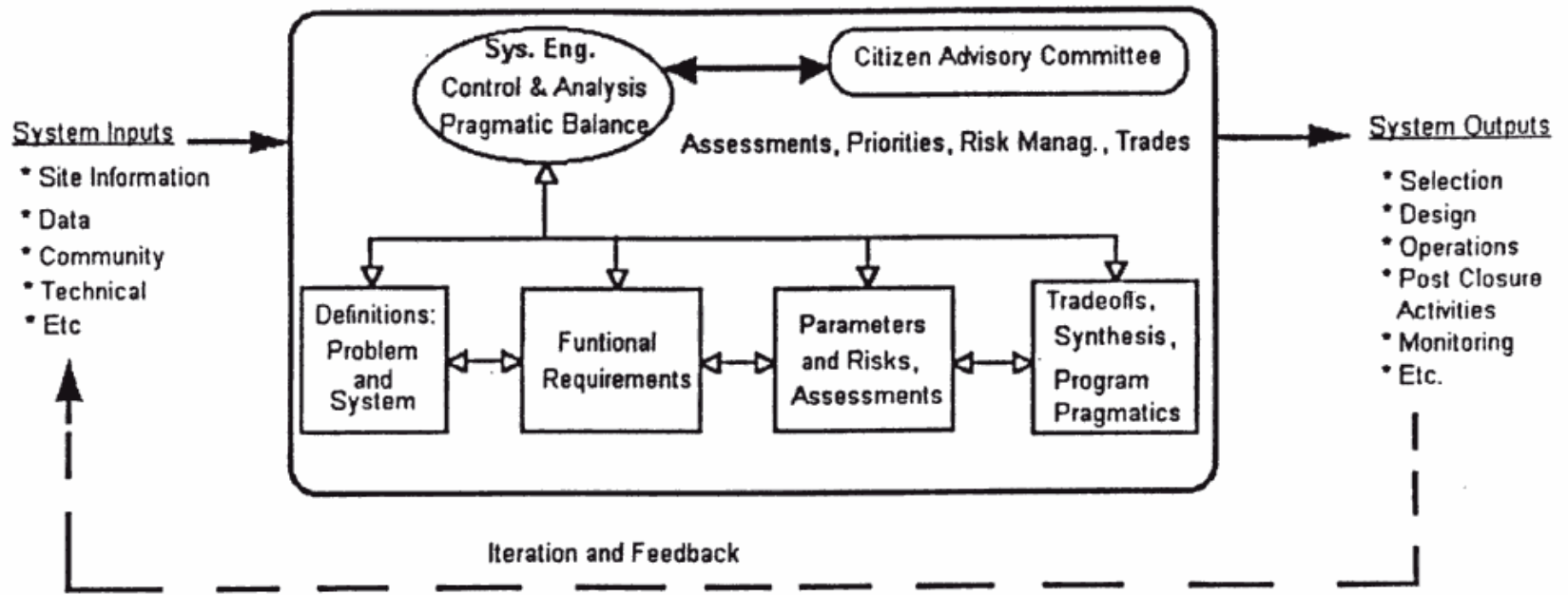


Figure 1. The Systems Engineering Process for Urban Planning Incorporating the NIMBY Issues

Principal Stages in the Acquisition, Operation and Post Operation of an MSW Landfill

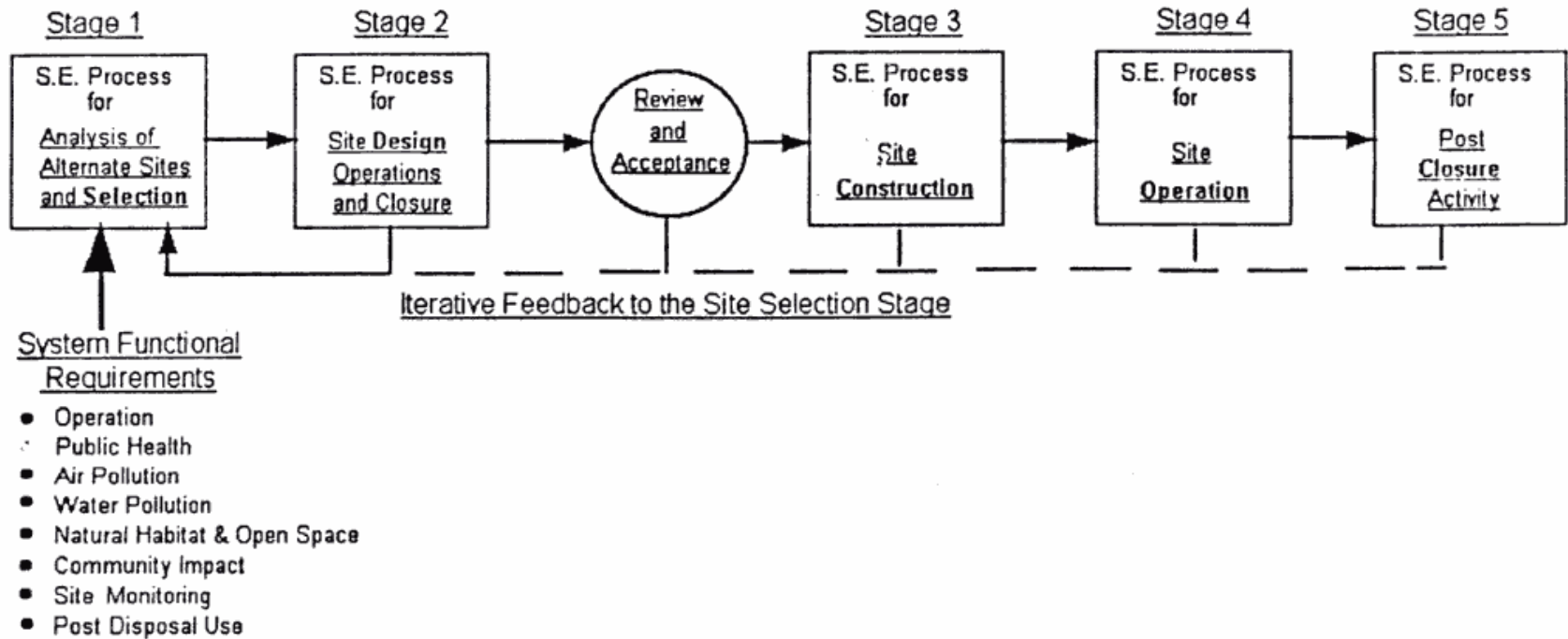


Figure 2. The Systems Engineering Process through Lifecycle of the Project

Further Information
Consult Website of
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