Outline

I. Demographics of Brunswick County and Royal Oak Community
II. Physical Characteristics of Proposed Expansion Site
III. Endangered Species
IV. Health Impacts of Landfill Expansion
V. Waste Reduction and Landfill Alternatives
Introduction

Brunswick Co. Construction & Demolition Landfill

- What is a C&D Landfill?
- Where is the Brunswick County C&D Landfill?
- Why is the expansion significant?
Demographics of Brunswick County and Royal Oak Community
## Royal Oak Property Values

<table>
<thead>
<tr>
<th>Taxable Value as of 2010</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property Value</td>
<td>$147,730.00</td>
<td>$68,890.00</td>
</tr>
<tr>
<td>Building Value*</td>
<td>$90,922.00</td>
<td>$63,005.00</td>
</tr>
<tr>
<td>Total Value</td>
<td>$537,175.00</td>
<td>$109,450.00</td>
</tr>
</tbody>
</table>

Source: 1.1

*only for parcels which contain buildings
Environmental Justice Vulnerability Index

Sources: 1.2, 1.3, 1.4, 1.5, 1.6, 1.8
Spatial Interpolation

Source: 1.7
Physical Characteristics of Proposed Expansion Site
Physical Characteristics

- Flat, sandy, and wet
- Varied hydrological features
- Groundwater flows towards the east \(^{(2.1)}\)

Source: 2.1
Design Considerations

- Vertical separation \(^{(2.2)}\)
- 24 inch clay liner
- Low risk of well contamination
- Final siting report in progress

Source: 2.1
Endangered Species
Endangered Species of Brunswick County

- 63 federally protected species \(^{(3.1)}\)
- Wetlands near proposed landfill
Protection of Endangered Species

• Federal Endangered Species Act \(^{(3.2)}\)
  • Permitting
  • Enforcement

• State Endangered Species Act \(^{(3.3)}\)
  • Scope issues
  • Enforcement
Recent Findings

US Fish and Wildlife Service requested survey on April 12th, 2011 (3.4)
Health Impacts of Landfill Expansion
Community Health Concerns

- Expansion would increase operational lifespan of facility
- Residents concerned about their water (4.1)
- Hazardous materials can accumulate in C&D landfills (4.1)
Health Impacts of C&D Landfills

Potential Water Impacts

- Iron and Manganese (4.2)
- Lead (4.3, 4.4)
- Arsenic (4.5)

Potential Air Impacts

- Hydrogen Sulfide (4.6)
- Particulate Matter (PM) (4.7, 4.8, 4.9)
Additional Burden of Existing LULUs

- Existing Locally Unwanted Land Uses (LULUs)
- Ex: sand and gravel mines \(^{(4.1)}\)
- Case: Irwindale, California \(^{(4.10)}\)
Health Impact Mitigation

- Exposure levels uncertain
- Further site-specific data recommended
- Water and air-quality testing (4.3, 4.11)
Waste Reduction and Landfill Alternatives
Background

- 25-30% of solid waste is C&D \(^{(5.3)}\)
- Drop-off sites
- Swap Shop
- Habitat for Humanity

\[ 2000 \text{ ft}^2 \text{ home} = 8,000 \text{ lbs of waste}\] \(^{(5.1)}\)
\[ 46,297 \text{ homes} \times 8,000 \text{ lbs of waste} \approx 300,000,000 \text{ lbs of waste}\] \(^{(5.1, 5.2)}\)
Benefits of Green Services

- Benefits environment
- Saves money
- Diverts waste
- Supplies reuse materials
- Creates jobs
- Conserves resources
- Promotes positive public image
Examples of Green Recycling Programs

- “Accent Construction Recycling and Reuse Initiative”
- “C&D RRR project”
- Paint, carpet, and mobile home programs
Conclusions
Conclusions

- Burden of expansion
- Impacts of the expansion uncertain
- Potential benefits and outcomes
Acknowledgements

We would like to thank Ann Moss-Joyner, Elizabeth Shay, and Hannah Spring for all of their generous contributions to this project.
Questions?

1.2 U.S. Census Bureau; 2010 Census of Household Population and Type; Block Groups, Brunswick County, Summary File 1; generated by Erin Guthrie; using American FactFinder; (17 October 2011).

1.3 U.S. Census Bureau; 2010 Census of Households Below Poverty Level, Block Groups, Brunswick County, Summary File 1; generated by Erin Guthrie; using American FactFinder; (24 October 2011).

1.4 U.S. Census Bureau; 2010 Census of Race of Householder, Block Groups, Brunswick County, Summary File 1; generated by Erin Guthrie; using American FactFinder; (24 October 2011).

1.5 U.S. Census Bureau; 2010 Census of Race of Householder, North Carolina, Summary File 1; generated by Erin Guthrie; using American FactFinder; (25 October 2011).

1.6 U.S. Census Bureau; 2010 Census of Poverty by Household, North Carolina, Summary File 1; generated by Erin Guthrie; using American FactFinder; (24 October 2011).

1.7 U.S. Census Bureau; 2010 Census of Race of Householder, Blocks, Brunswick County, Summary File 1; generated by Erin Guthrie; using American FactFinder; (17 October 2011).


Citations Continued


5.2: U.S. Census Bureau; 2010 Census of Race of Householder, Block Groups, Brunswick County, Summary File 1; generated by Erin Guthrie; using American FactFinder; 24 October 2011.