

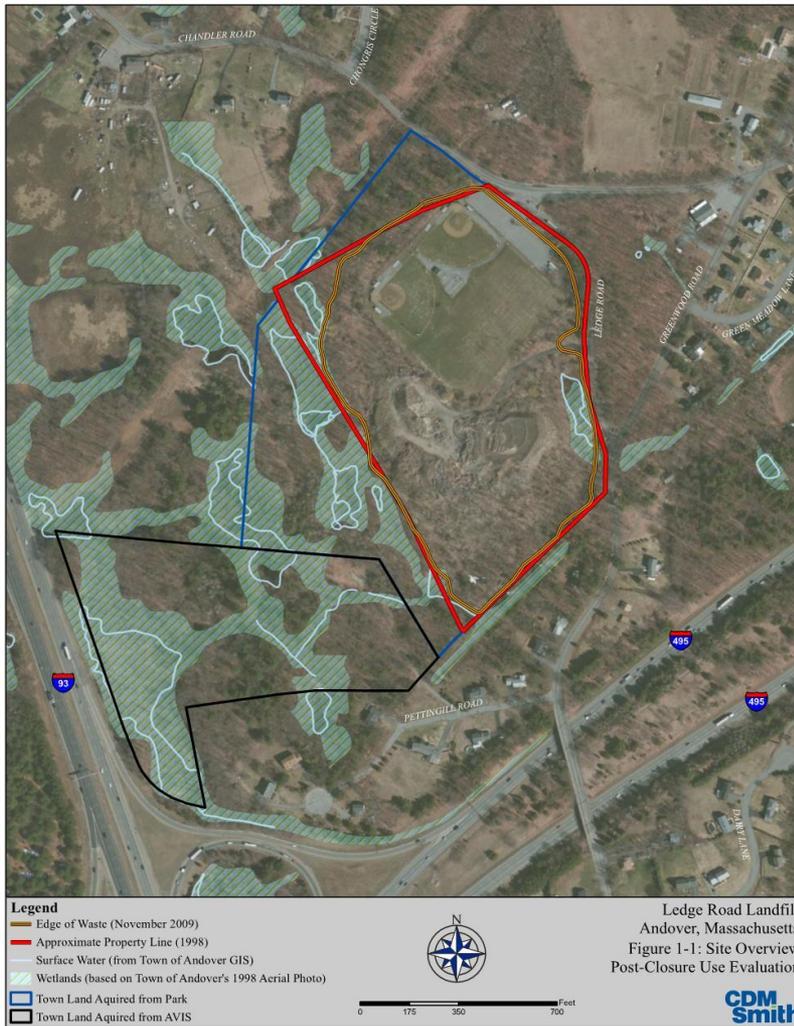
Further Discussion – Post-Closure Uses of Ledge Road Landfill Site

July 30, 2015

Agenda

- Background
- DPW Material Handling Area
- Potential Recycling Drop-off Area
- Recreational Fields

Landfill Site Overview



- 25 acre parcel with 22 acres historically landfilled
- Current uses
 - Recreational fields
 - Public works material storage and processing
- Residential areas to south and northwest
- Access off Greenwood Road and inactive Ledge Road driveway
- Capping and remediation cost estimated at \$8.4M
- Annual post-closure monitoring cost estimated at \$80,000 per year

Post-Closure Uses Evaluated

| Potential Post-Closure Use | Technically Feasible? | Description |
|-------------------------------|-----------------------|---|
| Passive/Open Space | Yes | Baseline alternative |
| DPW Material Handling Area ✓ | Yes | Required use |
| Recreational Fields ✓ | Yes | Replacement of existing recreational facility on-site |
| Solar Photovoltaic (PV) Array | Yes | Potential for revenue generation. |

✓ Today's Focus

Also presenting conceptual thoughts on recycling drop-off center

Recreational Fields Alternative – Replace Existing Fields and DPW Material Handling Area



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CONCEPTUAL LAYOUT - DPW OPERATIONS AREA AND RECREATIONAL FIELDS

Figure No. 2-1
MAY 2015

Ledge Road Landfill Closure and Re-Use

MATERIALS HANDLING FACILITY OVERVIEW

Considerations - DPW Material Handling Area



Existing Public Works Material Storage Area at Landfill



Public works material storage bin at closed Brookline Landfill

- Develop an efficient operation on top of capped landfill that provides required services.
- Replace and augment existing operations occurring at landfill.
- Final design to incorporate appropriate controls for stormwater, views/aesthetics, noise, dust, security and traffic.
- Primarily rely on series of bins for material storage.

Proposed Operations Support Day-to-Day Public Works Operations

| Category of Materials | Examples | Current Operation at Landfill? |
|---|--|--------------------------------|
| Excess materials from DPW and Plant & Facilities operations requires consolidation prior to Off-Site Disposal or Re-Use | Street sweepings, catch basin cleanings, excess soils and asphalt, ABC materials | Yes |
| Various construction materials needed for DPW and Plant & Facilities construction and maintenance operations | Finished loam, stone dust, gravel, clay, safety mulch, stone | Partial |
| Storage of Seasonal Equipment and Supplies | Traffic barrels, plows, storage containers | No |
| Staging Areas | Laydown area for town projects and storm debris | Yes |

Estimates of Truck Trips to Materials Handling Facility

- Primarily operates during construction season – April to November
- Facility mostly active during daily DPW operations
 - Except during emergencies and off-hour work
 - Typically 7:00 am to 3:00 pm Monday through Friday
- Current operations generate approximately 10 round trips per day on average
 - Does not include peak days associated with in-Town paving projects that generate 10-12 round trips per day (only during paving activities)
 - Under current operations materials remain on-site; future operations would require additional truck trips for material removal
- During construction projects, construction material storage would add between 4 and 12 round trips per day (dependent on # of projects)
- Storage of equipment and supplies and Staging Area are infrequent uses and will not create regular truck traffic.

Ledge Road Landfill Closure and Re-Use

RECYCLING CENTER

Provide a recycling drop-off center for residents

- Provide location for Andover residents to recycle and dispose of difficult-to-manage items
- Paved area with separate secure area with appropriate traffic flow and queuing areas
- Limited operations - 2 days/wk
- Requires oversight and management
- Appropriate environmental controls
- Requires approximately one-acre of operating area

| Potential Materials to be Accepted | |
|------------------------------------|-------------------------|
| Construction Debris | Electronics |
| Sheetrock/Plaster | Televisions, CRT's |
| Metal – Appliances | Clothes/Shoes |
| Freon Appliances | Automobile Fluids |
| Re-Use/Swap Shop | Bulky Items |
| Mercury Items | Tires |
| Household Hazardous Waste | Paint |
| Batteries | Recyclables – cardboard |
| Books | Fluorescent Bulbs |
| Plastics not accepted at curbside | Propane tanks |

Ledge Road Landfill Closure and Re-Use

ESTIMATES OF INCREMENTAL CONSTRUCTION COSTS

Capital Cost Estimate

DPW Material Handling Area

| Cost Item | Subtotal Incremental Cost |
|---|---------------------------|
| Gravel Finished Surface Including Geotextile (equivalent in cost to cap topsoil layer) | \$0 |
| Additional Fill to Adjust Final Grades from Cap (bring cap layer minimum 5% to 3.5%) | \$420,000 |
| Retaining Wall and 13 Bins | \$140,000 |
| Subtotal – Estimated Construction Cost | \$560,000 |
| Engineering | \$50,000 |
| Construction Contingency (25%) | \$155,000 |
| TOTAL | \$765,000 |

- Represents incremental cost above \$8.4M landfill closure.
- Does not include potential recycling drop-off center.
- Annual O&M unchanged from current operations.

Recreational Fields – Replace Existing Fields and DPW Material Handling Area



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CONCEPTUAL LAYOUT - DPW OPERATIONS AREA AND RECREATIONAL FIELDS

Figure No. 2-1
MAY 2015

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Cost Assumptions - Recreational Fields

- Replace existing 2 Little League Fields and large rectangular multi-purpose field
- Appurtenances: batting cages, concession stand/storage building, fencing/gates, irrigation system
- Access off Chandler Road with 80 parking spaces
- Landfill driven costs
 - Additional fill to “flatten” cap (cap at 5% → field 1.5% slope)
 - Potential future maintenance costs due to settlement of underlying waste



Capped Front Landfill,
Brookline – Recreational Field

Capital Cost Estimate

Natural Turf – Recreational Fields

| Cost Item | Unit Cost | Subtotal Incremental Cost * |
|--|--------------------------------|----------------------------------|
| Additional Sand Fill to Adjust Final Grades from Cap | \$20/ton | \$890,000 - \$1,800,000 |
| Loam and seed premium | 31,500 s.y. @ \$2.5/s.y. | \$79,000 |
| Lighting | Allowance | \$870,000 - \$962,000 |
| Baseball Infield Appurtenances | 2 @ \$50,000 | \$100,000 |
| Batting Cage | \$30,000 | \$30,000 |
| Concession/Storage Building | Allowance | \$150,000 |
| Irrigation System and Water Service | Allowance | \$150,000 |
| Parking Lot and Stormwater Control | Allowance | \$170,000 |
| Pathways | Allowance | \$50,000 |
| Fences and Gates | 2,500 lf @ \$30/lf | \$75,000 |
| Subtotal – Estimated Construction Cost | | \$2,564,000 – \$3,566,000 |
| | Engineering | \$100,000 - \$150,000 |
| | Construction Contingency (25%) | \$641,000 – \$892,000 |
| TOTAL | | \$3,305,000 – \$4,608,000 |

* Represents incremental cost above \$8.4M landfill closure.

- Recommended O&M allowance for landfill settlement: \$5K - \$10K per year.
- Natural Turf Field O&M approx. \$35K – \$50K per year (excludes electricity, water, building maintenance).

Capital Cost Estimate

Recreational Field Lighting

| Cost Item | Unit Cost | Subtotal Incremental Cost |
|--|----------------------------------|-------------------------------|
| Geotechnical Investigation Program | \$20,000 | \$20,000 |
| Light Poles (8) [50' height] | \$30,000 each | \$240,000 |
| Foundations – Standard | \$12,000 to \$15,000 each | \$96,000 to \$120,000 |
| Foundations – Additional for Subsurface (assumed 25 feet at each location) | \$12,500 each | \$100,000 |
| Electrical Service | \$200,000 to \$250,000 Allowance | \$200,000 to \$250,000 |
| Subtotal Estimated Construction Costs | | \$656,000 to \$730,000 |
| | Engineering | \$50,000 |
| | Construction Contingency (25%) | \$164,000 to \$182,000 |
| TOTAL | | \$870,000 to \$962,000 |

Notes:

- Additional foundation costs may be required based on geotechnical investigation.
- Costs do not assume LED lighting, as additional research required.

Option - Artificial Turf Field

- Replace grassed rectangular field with artificial turf
- Benefits:
 - Greater playing time
 - Reduced field maintenance costs (no irrigation, fertilizer, mowing, herbicides/pesticides)
 - Improved safety for players
- Constraints:
 - High potential for site settlement → increases landfill maintenance cost
 - Suggested pre-load program → lengthens cap construction schedule
 - High initial installation cost → more than \$1.7M higher than natural turf field cost (artificial turf \$9.65/sq.ft. vs. natural turf \$3.21 sq. ft.)
- Annual O&M approx. \$8-10K /year

Summary of Capital Costs

- Landfill Closure Cost Estimate: \$8,400,000
- Post-Closure Options - Incremental Costs Above Landfill Closure Construction

| Options | Incremental Construction Cost |
|--------------------------------------|----------------------------------|
| DPW Material Handling | \$765,000 |
| Recycling Center | TBD |
| Replacement Recreational Fields | |
| • Natural Turf Field | \$2,440,000 - \$3,650,000 |
| • Lighting | \$870,000 - \$960,000 |
| Subtotal (Natural Turf Field) | \$3,310,000 - \$4,610,000 |
| • Artificial Turf Field | \$1,700,000 |
| Total (Field) | \$5,010,000 - \$6,310,000 |
| Solar Photovoltaic Array | Potential Revenue Source |

Questions and Comments

Solar Photovoltaic Installation and DPW Materials Handling Area



Summary of Annual O&M Costs

- Post-Closure Landfill Monitoring: ~ \$80,000 (required by MassDEP)
- Post-Closure Annual O&M Estimates

| Options | Annual O&M Estimate |
|--|--------------------------|
| DPW Material Handling | No change from current |
| Recycling Center | TBD |
| Replacement Recreational Fields ¹ | |
| • Landfill Settlement Allowance | \$5,000 - \$10,000 |
| • Natural Turf – Ballfield | \$15,000 – \$20,000 |
| • Natural Turf – Soccer | \$10,000 – \$15,000 |
| • Artificial Turf ² – Soccer | \$8,000 - \$10,000 |
| Solar Photovoltaic Array | Potential Revenue Source |

Notes:

¹ Excludes electricity, water, building/facility maintenance

² Excludes snow removal