Lexington-Fayette Urban County Government

200 E. Main St
Lexington, KY 40507

Docket

Tuesday, March 11, 2025

1:00 PM

Packet

Council Chamber

Environmental Quality and Public Works Committee

Committee Agenda

0248-25	Approval of the February 11, 2025 Committee Summary
0572-22	Status Update: Energy Initiatives
0440-22	Pavement Management Plan
0249-25	Haley Pike Landfill Solar Feasibility Study
0250-25	Items Referred to Committee

Adjournment

Lexington-Fayette Urban County Government

Master

200 E. Main St
Lexington, KY 40507

File Number: 0248-25

File ID:	0248-25	**Type:**	Committee Item	**Status:**	Agenda Ready
Version:	1	**Contract #:**		**In Control:**	Environmental Quality and Public Works Committee
				File Created:	03/04/2025
File Name:	Approval of the February 11, 2025 Committee Summary			**Final Action:**	

Title: Approval of the February 11, 2025 Committee Summary

Notes:

Sponsors:		**Enactment Date:**	
Attachments:	eqpw_committee packet_summary_2025-02-11	**Enactment Number:**	
Deed #:		**Hearing Date:**	
Drafter:		**Effective Date:**	

History of Legislative File

Version:	Acting Body:	Date:	Action:	Sent To:	Due Date:	Return Date:	Result:

Text of Legislative File 0248-25

Title
Approval of the February 11, 2025 Committee Summary

Environmental Quality & Public Works (EQPW) Committee

February 11, 2025

Summary and Motions

Chair Hannah LeGris called the meeting to order at 1:00 p.m.

Committee Members Dave Sevigny, James Brown, Tyler Morton, Emma Curtis, Liz Sheehan, Denise Gray, Joseph Hale, Amy Beasley, and Hil Boone were present. Vice Mayor Dan Wu and Council Members Shayla Lynch and Jennifer Reynolds were present as non-voting members.

I. APPROVAL OF DECEMBER 3, 2024 COMMITTEE SUMMARY

Motion by Sevigny to approve the December 3, 2024 Environmental Quality & Public Works Committee Summary. Seconded by Fogle. Motion passed without dissent.

II. NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM (NTMP)

Roger Mulvaney, LFUCG Traffic Engineer Manager, presented an overview of the Neighborhood Traffic Management Program (NTMP). He reviewed Traffic Engineering, which is divided into 3 sections: computerized traffic signals; new development, street lighting, and signal construction; and signs and NTMP. NTMP was enacted in 2000 and is managed by the Division of Traffic Engineering. This has been Lexington's primary traffic calming program for the last 25 years. Traffic calming helps achieve safer speeds for local streets and vulnerable roadway users. NTMP is targeted at traffic calming efforts on Local and Collector roads in residential zones, and funding for this program typically comes from the Traffic Engineering budget. Traffic calming efforts are not limited to residential roads; funding for these projects is not usually part of Traffic Engineering's budget.

Mulvaney reviewed the NTMP process, which includes 3 tiers of traffic calming: conventional interventions, horizontal and vertical deflections, and diversions and closures. Moving forward, they are working with a consultant to streamline and modernize how NTMP notifications are processed. The Citizen Connect Portal project is intended to provide a user-friendly interface for the public to share traffic-calming concerns. The portal is designed to provide project tracking and progress information. It intends to show the public where active and past projects have occurred via mapping features.

Addressing where funding comes from for non-NTMP projects, Mulvaney explained that sometimes funding comes from the Council or the administration for traffic calming projects. To distinguish between NTMP and non-NTMP projects, Mulvaney said an NTMP project goes through the NTMP process, which is initiated by a citizen who reaches out to Traffic Engineering and has a petition to support the project, then Traffic Engineering does an analysis. A non-NTMP or traffic calming project may not have all those elements and may be managed outside Traffic Engineering. Mulvaney said the Citizen Connect Portal will be available later this year and will funnel all traffic-calming requests to one place. Regarding the breakdown of NTMP projects by council district, Mulvaney thinks they can break this down, and the council members are typically included in communications regarding the progress of projects in their district. No action was taken on this item.

III. ODOR CONTROL PROGRAM UPDATE

Charlie Martin, Division of Water Quality Director, explained that this item was a result of a significant increase in complaints about sewer odor in 2023. Webster Environmental Associates was hired under an emergency declaration to assist with corrective action. In 2023, the focus was on (2) Wastewater Treatment Plants (WWTP): Town Branch and West Hickman. He reviewed 2024 accomplishments, including equipment improvements, an evaluation documenting the effectiveness of chemicals used to control odor, and transitioning from a reactive to a proactive state of mind. At Town Branch, a contract was awarded in late 2024 to construct a bio scrubber. At West Hickman, a process modification was implemented, the chemical scrubber was rehabilitated, and a contract was awarded to upgrade/replace the activated carbon units. For the collection system, they monitored the air release valves on eight different force mains, which are believed to be primary contributors to odor issues. They also pilot-tested alternative chemicals to determine cost/benefit effectiveness. Martin introduced Rick Bowman, Odor Control Manager, who was hired to assist with monitoring the odor.

The goals for 2025 include placing newly constructed plant improvements into service, implementing remote pilot studies to evaluate chemical application effectiveness, developing unit price service contracts, implementing the next set of recommendations found in WWTP warm-weather modeling reports, and continuing to implement a long-term monitoring program to address odors proactively. Throughout this process, Martin has developed relationships with constituents who will call him directly, and he will go to the specified location to see firsthand what the issue is and work to resolve it. Regarding the estimated cost associated with the 2025 goals, Martin said they started with $6 million allocated to this program under the mayor's emergency declaration. He said funding is less of an issue than the supply chain, which holds projects up. Martin added that the best way to file a complaint is to call 3-1-1 and provide as much information as possible. No action was taken on this item.

IV. ANNUAL REVIEW OF COMMITTEE ITEMS

Motion by Sevigny to remove *Microtransit* from the list of committee items and move to the Budget, Finance, and Economic Development Committee. Seconded by Gray. Motion passed without dissent.

Motion by Sevigny to remove *Recycling Practices* from the list of committee items. Seconded by Gray. Motion passed without dissent.

Motion by Sevigny to remove *Division and Program Reviews* from the list of committee items. Seconded by Gray. Motion passed without dissent.

The meeting adjourned at 2:12 p.m.

Lexington-Fayette Urban County Government

Master

200 E. Main St
Lexington, KY 40507

File Number: 0572-22

File ID:	0572-22	**Type:**	Committee Item	**Status:**	Agenda Ready
Version:	1	**Contract #:**		**In Control:**	Environmental Quality and Public Works Committee
				File Created:	06/01/2022
File Name:	Status Update: Energy Initiatives			**Final Action:**	
Title:	Status Update: Energy Initiatives				
Notes:					
Sponsors:				**Enactment Date:**	
Attachments:	2025 Energy Update_EQ committee			**Enactment Number:**	
Deed #:				**Hearing Date:**	
Drafter:				**Effective Date:**	

History of Legislative File

Version:	Acting Body:	Date:	Action:	Sent To:	Due Date:	Return Date:	Result:

Text of Legislative File 0572-22

Title

Status Update: Energy Initiatives

STATUS UPDATE: ENERGY INITIATIVES

James Bush, Energy Initiatives Section Manager

Environmental Quality & Public Works Committee

March 11, 2025

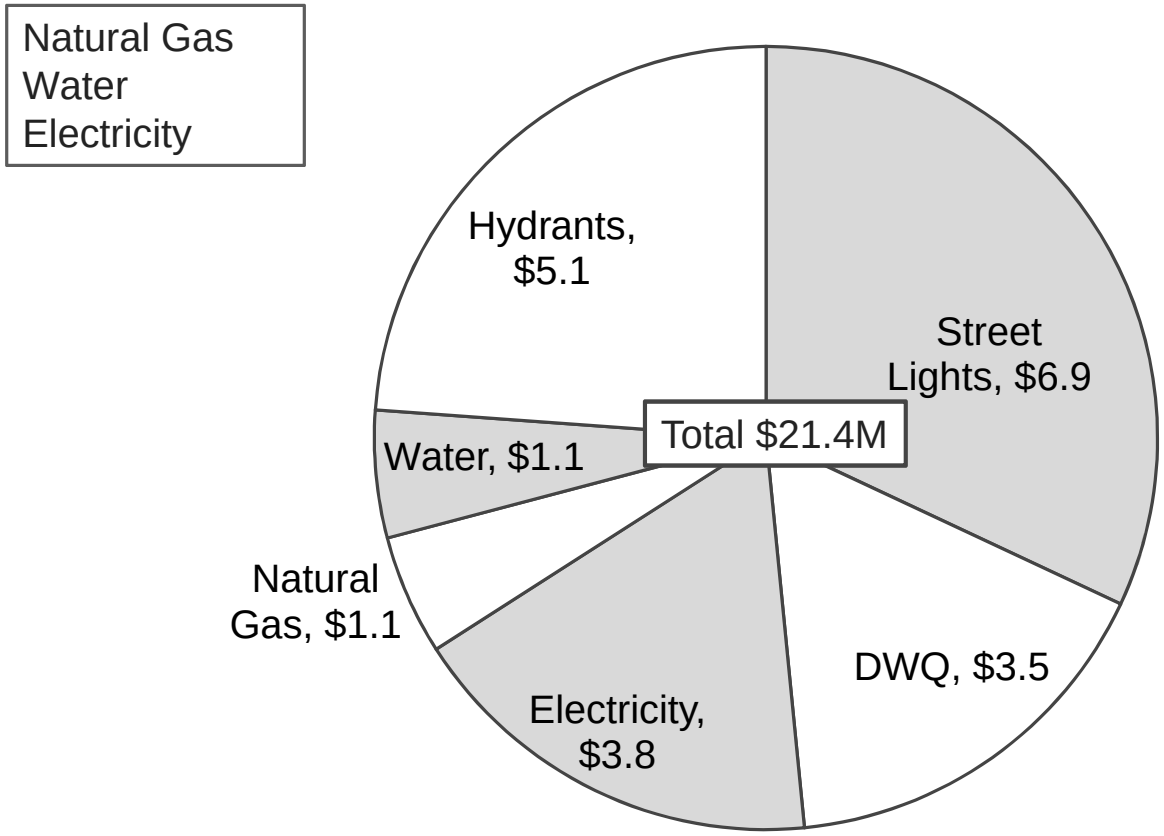
LEXINGTON

LEXINGTON

Presentation Outline

- Utility Snapshot
- FY 2025 EIF Projects
- EIF Fund Balance
- Comments & Conclusions

FY 2024 Utility Expenses (millions)



In 2025…
19% increase to WATER
7% increase to GAS
ELEC tbd

Prior Years	
FY21	$19.2M
FY22	$20.5M
FY23	$21.0M
FY24	$21.4M

LEXINGTON

FY 2025 Solar Projects

- Fire Station #22
- Fire Station #19 - *In Process*
- Solar Shares
  - Northbase, Comm Tower
  - Station #20, Station #8

- Added capacity +49 kWdc

- Total capacity 203 kWdc
  (10 installs; 6 on-bill)

EIF Investment:
$137,031

Year 1 Estimated Cost Avoidance:
$7,885 /yr

Estimated Energy Avoidance:
65,310 kWh/yr

LEXINGTON

FY 2025 continued

- Solar @ Police East Sector
  RFP anticipated in FY2025
- Tates Creek Ballroom HVAC replacement
  Potential cost-share project with Parks & Rec
- KU Solar Share Program
  Option for buildings not compatible with on-site installation
- Working with Finance to pursue federal rebates
  for LFUCG solar projects
- Lighting projects < $8,000

Fire Station #22

Location: 4393 Clearwater Way
Solar Array: 22.1 kWdc
Est Output: 28,186 kWh
Est Savings: $3,179

Note: not designed for solar; large east-facing roof

Police West Training Center (Review)

Location: 1799 Old Frankfort Pike
Project Year: 2024
Solar Array: 30.2 kWdc
Year 1 Savings: $4547
- Period 7/27/23 to 7/26/204
- Modeled Savings $3807

71% of solar energy used on site; reducing purchased electricity by 30%

LEXINGTON

Energy Improvement Fund Balance (as of 2/24/2025)

General Services (1101, 1105)	$272,147
Urban Services (1115, 1116)	$30,824
Sanitary Sewer (4002, 4003)	$263,502

- EIF-1101 was fully expended at close FY2024
- Balance above reflects FY2025 allocation *plus* earmark for solar projects
- Smaller allocation request in FY2026 MPB in anticipation of (federal) EECBG

- EIF-1115 and EIF-4002. Funding requests have been paused
  Will proceed on a project basis (year-to-year)

LEXINGTON

Conclusions & Comments

- Continued emphasis on solar PV
- Coordinating with new and re-roofing projects
  - Police East Sector
  - Police West Roll Call
  - Police Technical
  - Black & Williams Community Building
- Above-code efficiency and solar are optional
  - Senior Therapeutic Center will be the first building to include photovoltaics at construction
  - High performance buildings would require policy/directive

Questions?

LEXINGTON

Lexington-Fayette Urban County Government

Master

200 E. Main St
Lexington, KY 40507

File Number: 0440-22

File ID:	0440-22	**Type:**	Committee Item	**Status:**	Agenda Ready
Version:	1	**Contract #:**		**In Control:**	Environmental Quality and Public Works Committee
				File Created:	04/28/2022
File Name:	Pavement Management Plan			**Final Action:**	
Title:	FY23 Pavement Management Plan				
Notes:					
Sponsors:				**Enactment Date:**	
Attachments:	Pavement_Management_Presentation March 11 EQPW			**Enactment Number:**	
Deed #:				**Hearing Date:**	
Drafter:				**Effective Date:**	

History of Legislative File

Version:	Acting Body:	Date:	Action:	Sent To:	Due Date:	Return Date:	Result:

Text of Legislative File 0440-22

Title

FY23 Pavement Management Plan

PAVEMENT MANAGEMENT PLAN UPDATE

Nancy Albright, Commissioner

Environmental Quality & Public Works Committee

March 11, 2025

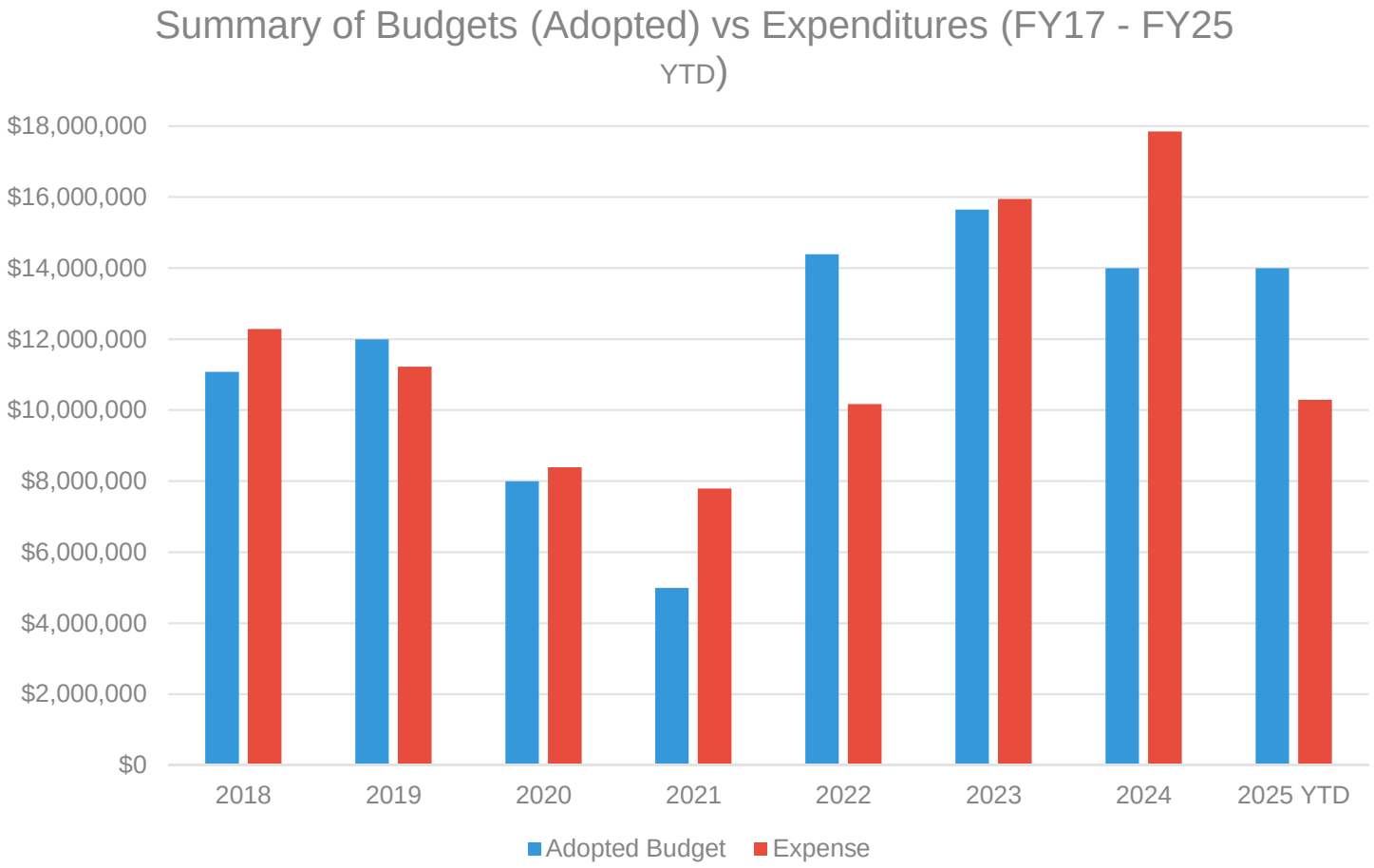
LEXINGTON

Agenda

- History
- Summary of Budgets vs Expenditures
- Pavement Management Plan Overview
- Project Prioritization Responsibility
- Road Class Allocations
- FY25 Paving Budget
- Paving Calendar
- Paving Sharing Program Overview
- Looking Forward

History

- Prior to Plan, LFUCG staff conducted visual surveys supported by interns from Engineering
- Council formed Paving Subcommittee in 2014 to investigate data-driven strategies and draft a plan informed by a condition survey and analysis
- Data-driven Pavement Management Plan authorized by Council in 2016 (Res. 470-2016 & 417-2016)
- In 2022, Paving Subcommittee reconvened to review Plan and recommend updates
- In 2023, Council approves recommended updates for FY24 (Res. 326-2023 & 327-2023)



FY25 Remaining funds programed for spring paving $7,900,164

Pavement Management Plan Overview

- Roads are scored using performance metric Overall Condition Index (OCI)
  - Range from 0 (worst) to 100 (best)
  - Roads with OCI < 60 considered candidates to repave
- Plan divides the total paving budget based on a set percentage of total funds allocated to specific types of roads or road classes
- District Council Offices are responsible for a funded road class called Local Roads, and the Local Roads fund is split between the 12 districts according to the relative proportion of Local Roads in their districts with scores of OCI < 60
- Subcommittee FY24 updates
  - Emphasized service / industrial roads as a category with funding flexibility in arterials budget
  - Council prioritizes paving needs totaling 200% of budget for more efficient coordination as priorities are vetted to avoid near-term conflicts that would damage new pavement
  - Creation of color-coded maps based on survey data
  - Adjusted funding proportions per road class

Project Prioritization Responsibility

Project Prioritization Responsibility				
Road Class	**Maintenance / Ownership**			
	Local / LFUCG	**County**	**State**	**Private**
Local Road	District Councilmember	Fiscal Court	KYTC	Private Owner(s)
Service / Industrial	Administration with Council Input			
Collectors				
Major / Minor Arterial				

Road Class Allocations

The updated Pavement Management Plan recommends allocations be apportioned according to the following percentages:

Budget Category by Road Class	Updated Plan Budget Allocations
Maj./Min. Arterials, Service/Industrial Rds.	25%
Collectors	25%
Local Class	40%
Preventative Maintenance	10%
Total	**100%**

FY25 Paving Budget

FY25 Paving Budget	**$14,000,000**
Maj./Min. Arterial, Service/Industrial Rds. (25%)	$3,500,000
Collectors (25%)	$3,500,000
Local Roads (40%)	$5,600,000
Preventative Maintenance (10%)	$1,400,000
	$14,000,000

FY25 Local Roads Budget

- Percentage of local road lane miles with OCI less than 60

Local road paving budget = (0.4) * $14,000,000 = $5,600,000

FY 2025 PAVING FUNDS ALLOCATION BY COUNCIL DISTRICT			
ALLOCATION BY LOCAL LANE MILES OCI<60			
Council District	Local Lane Miles with OCI < 60	Allocated Funds by District - FY25	*FY26 200% Target May 31 Deadline*
1	82.53	$ 517,985.83	*$ 1,035,971.66*
2	80.61	$ 505,940.15	*$ 1,011,880.30*
3	60.10	$ 377,205.61	*$ 754,411.22*
4	58.50	$ 367,171.10	*$ 734,342.20*
5	86.79	$ 544,682.70	*$ 1,089,365.40*
6	90.39	$ 567,295.40	*$ 1,134,590.80*
7	58.35	$ 366,217.81	*$ 732,435.62*
8	62.98	$ 395,237.29	*$ 790,474.58*
9	75.62	$ 474,595.69	*$ 949,191.38*
10	98.01	$ 615,085.89	*$ 1,230,171.78*
11	77.25	$ 484,851.28	*$ 969,702.56*
12	61.14	$ 383,731.24	*$ 767,462.48*
Total	892.28	$ 5,600,000.00	

Milling & Resurfacing = $86,900.00/Local Lane Mile

Paving Calendar – FY25 Wrap-up

- ***Paving calendar and fiscal year are asynchronous***
  - Fiscal year July 1 - June 30
  - Paving season spans roughly April 1 – December 15
  - Timelines and utility coordination require advanced planning

- **March 2025** – EQPW staff will provide district status updates regarding any remaining FY25 spring work

- **April 1 to June 30, 2025** – FY25 spring paving season
  - Collector and arterial roads that were scheduled but not completed in the fall are a focus for spring paving
  - Council FY25 priorities from the fall will be completed in spring as funding and utility coordination allow

Paving Calendar – Preparing for FY26

- **May 1 - 23, 2025** – EQPW staff meet with District Offices to prepare for FY26 paving season
- **May 31, 2025 –** Optional, "early bird" FY26 deadline;
  For release on July 1, 2025 (FY26 fall paving season)
- **July 1 - December 15, 2025** – FY26 fall paving season
- **December 16, 2025** – Final deadline for Council lists for FY26; *For release on April 1, 2026 (FY26 spring paving season)*
- **March 2026** – EQPW staff share spring status updates
- **April 1 - June 30, 2026** – FY26 spring paving season

Paving Sharing Program Overview

The Program seeks to strategically coordinate LFUCG paving priorities and combine efforts to provide the highest quality finished paving surface at the lowest total cost

- Council authorization in 2023 (Res. 491-2023 & 492-2023)
- Paving ***priorities must align*** with utility construction projects and timelines. Utilities ***must request*** to participate in paving sharing
- This program is ***voluntary & subject to LFUCG funding availability***
- To date, $541,546 has been reimbursed by utilities and reallocated to additional paving projects.
- Open paving sharing requests on 41 streets, including areas set for spring paving: Greentree, Multiple streets in the East End, multiple streets south of Maxwell

Looking Forward

- Continue to streamline processes and find efficiencies through utility coordination
- Update paving scores with new field survey data
- Pursue enhanced software integration designed for GIS mapping
- Consult with vendor regarding performance metrics, benchmarking, and seek examples of best practices employed by comparable municipalities

Questions?

Lexington-Fayette Urban County Government

200 E. Main St
Lexington, KY 40507

Master

File Number: 0249-25

File ID:	0249-25	**Type:**	Committee Item	**Status:**	Agenda Ready
Version:	1	**Contract #:**		**In Control:**	Environmental Quality and Public Works Committee
				File Created:	03/04/2025
File Name:	Haley Pike Landfill Solar Feasibility Study			**Final Action:**	
Title:	Haley Pike Landfill Solar Feasibility Study				
Notes:					
Sponsors:				**Enactment Date:**	
Attachments:	HPLF USS Study EQPW Com, HPLF Utility Scale Solar Exec_Sum - Final			**Enactment Number:**	
Deed #:				**Hearing Date:**	
Drafter:				**Effective Date:**	

History of Legislative File

Version:	Acting Body:	Date:	Action:	Sent To:	Due Date:	Return Date:	Result:

Text of Legislative File 0249-25

Title
Haley Pike Landfill Solar Feasibility Study

LEXINGTON

Haley Pike Landfill Utility Scale Solar Feasibility Study

Environmental Quality & Public Works Committee

Richard Dugas

March 11, 2025

LEXINGTON

Agenda

- History
- Assumptions
- Phase 0 Internal Study 2021
- Phase 1 External Study 2024
- Conclusion and Next Steps

History

- Operated Mid-70's to Mid-90's
- Currently two active operations
  - Creech Inc. horse muck to organic compost
  - Red River Ranch – LFUCG contractor for yard waste to mulch
- Two closed and capped cells
- Three permitted cells
- 2020/21 Old Frankfort Pike and Haley Pike landfills listed on EPA Repowering America Website

Assumptions

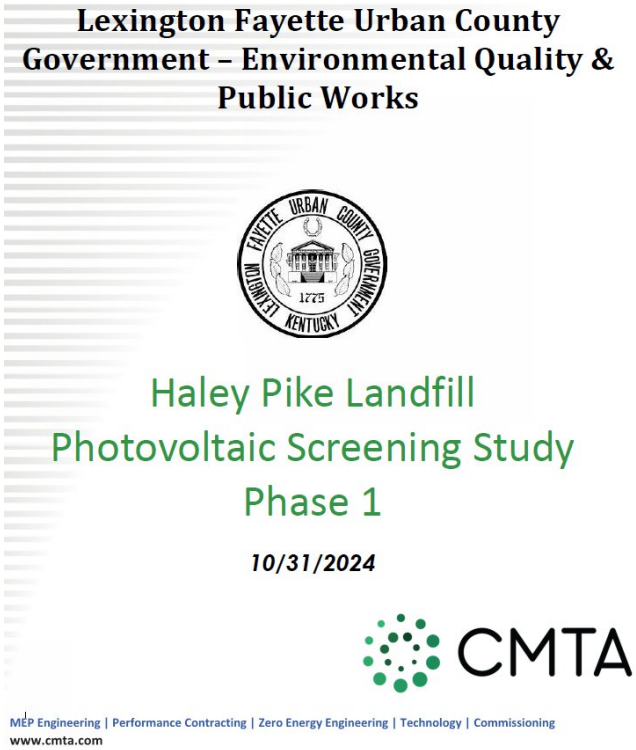
- LFUCG will NOT be involved in: Financing, Bonding, or being a Grantor of any Utility Scale Solar(USS) project on Haley Pike Landfill(HPLF).
- LFUCG only role will be as the Lessor of the property. LFUCG would not be involved in operations of the Utility Scale Solar operation.
- LFUCG will require a bond commensurate to the potential damage to the landfill by the developer/operator.
- There must be a clear and measurable benefit to LFUCG citizens.
- Any USS project will be required to Reuse/Repurpose the two capped cell to emphasize this is a “Reuse” project.

2021 Internal Feasibility Study (Phase 0) Conclusions

- Economics: Met criteria for economy of scale
- Development: Some challenges, adjacent High-Voltage interconnection
- Operations: Two adjacent Utilities
- Social and Environmental: Reuse of landfill avoids need for prime farmland
- Next Steps: Leachate issues halted additional progress.

2024 External Feasibility Study (Phase 1)

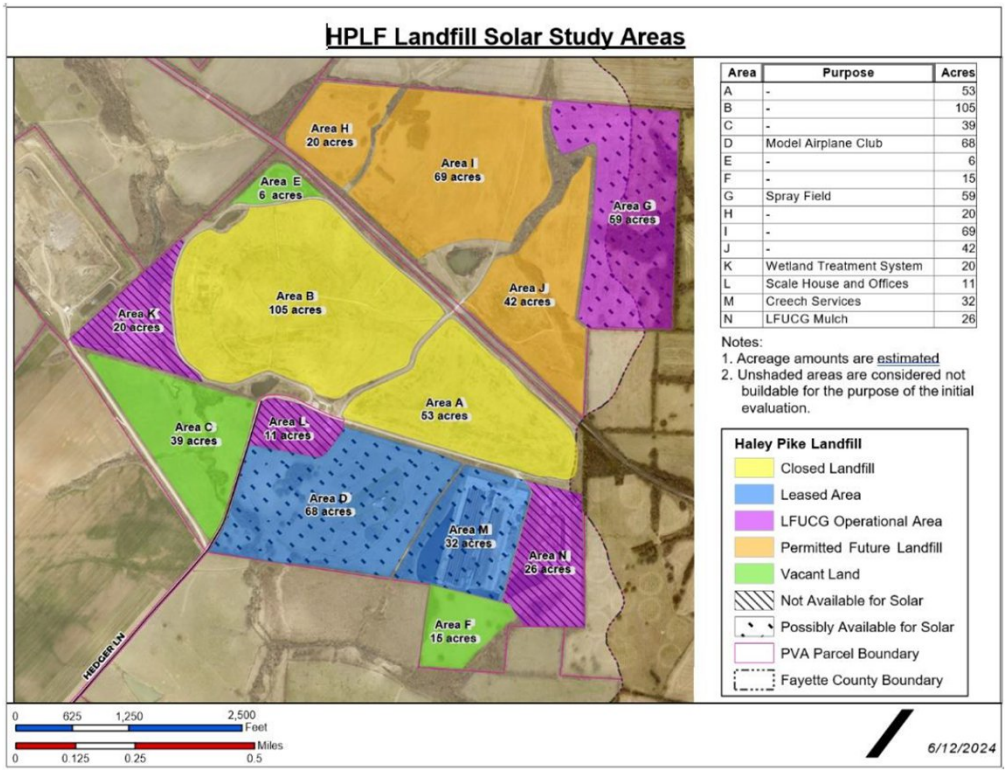
- Contract Awarded for Leachate System upgrades
- Resumed inquiries from Developers
- Multiple similar developments on nearby “Prime” farmland
- External Subject Matter Experts
  - Site Evaluation
  - Regulatory Analysis, including Zoning
  - Financial Viability
  - Provide estimated cost for future phases



LEXINGTON

2024 External Feasibility Study (Phase 1) Conclusions

- Zoning: USS - ZOTA that was moved to Committee
- Economic Feasibility: 312 of 687 Acres identified for USS (110 MWdc)
  - $171,000-$265,000/year lease
- Landfill Regulatory Issues: No history in KY
- Phase 2A – Industrial Grade Audit
- Phase 2B – Legal Review



Area	Purpose	Acres
A	-	53
B	-	105
C	-	39
D	Model Airplane Club	68
E	-	6
F	-	15
G	Spray Field	59
H	-	20
I	-	69
J	-	42
K	Wetland Treatment System	20
L	Scale House and Offices	11
M	Creech Services	32
N	LFUCG Mulch	26

Questions?

LEXINGTON

LEXINGTON

Haley Pike Landfill

Potential reuse for Utility Scale Solar

Status and Executive Summary

Prepared by:

Richard Dugas, B.Arch., CEM
Administrative Officer Sr.
Environmental Quality and Public Works

Sarah M. Donaldson, CHMM, PG
Environmental Compliance Coordinator
Division of Environmental Services

Summary

- 312 of 687 acres have potential for Utility Scale Solar development, with estimated lease payments of $171,000 - $265,000 annually.
- Utility Scale Solar development will have impacts on current and future post-closure regulatory requirements and will increase risks of cap damage or failure. Risks that would be mitigated by terms of any potential lease.
- LFUCG as the owner of the landfill will continue to be the "Responsible Party" for regulatory compliance regardless of any lease or reuse projects.

Assumptions

All past and current considerations for Utility Scale Solar (USS) have been done with these fixed assumptions:

- Lexington-Fayette Urban County Government (LFUCG) would NOT be involved in any financing, bonding, or guarantor of any USS project.
- Any USS development would be a turn-key project with LFUCG's only role being the Lessor of the property. LFUCG would not be involved in operating the USS facility.
- LFUCG would require a significant bond from any USS relative to the potential cost or damage to the regulated landfill.
- There must be overall clear and measurable benefits to the citizens of Fayette County.
- Any USS project would be required to be a Reuse/Repurpose project and utilizing the two capped cells, areas A & B. A minimum of 25% (or 33%) of the total installed array must be located on these areas. *(Note: This is an internally set number to emphasize to developers that **LFUCG will only considering Reuse projects**.)*

History – 2020 feasibility study (internal)

In 2020 LFUCG began to get inquiries from USS developers regarding the plans and potential for USS on both the Old Frankfort Pike Landfill and the Haley Pike Landfill. The surge in inquires was due to Environmental Protection Agency's launching of their Re-Powering America website, https://www.epa.gov/re-powering. EPA Re-Powering One Pager - Addendum A. At that time the Division of Environmental Services (DES) Energy Initiatives Section (EIS) was asked to research and provide an initial feasibility assessment. Old Frankfort Pike was immediately eliminated as it had already been repurposed as a driver's training pad and is used for frequent community events.

Haley Pike Landfill (HPLF) was assessed by EIS staff with the following result (Addendum B):

Zoning: Exclusive Use Zone EX-1. At the time no USS had been proposed by LFUCG and existing zoning regulations default to if something is not approved for that zone it is excluded by default. Additional during this timeframe in 2020 multiple legislative proposals were being considered at the state level. EIS determined that additional zoning changes or potentially conditional use would be needed. This was noted as a concern that would need regulatory relief but unlikely to prohibit future USS.

Economic feasibility: EIS reached out to multiple communities that had completed USS projects on landfills. Annapolis Maryland was willing to share portions of the economics of their landfill

redevelopment project. EIS also spoke directly with the developer and operator of the Annapolis site. Some of the critical data points collected: 15% Maximum slope for ballasted systems typically required on capped landfills. 80-100 acres is the minimum size threshold to achieve a 20-25MW array needed to make USS economically viable for a developer. Lease terms typically 25–30-year term up to $500 per acre annually, highly variable based on many factors. Nearby electrical infrastructure sufficient to support the USS. HPLF appeared to check all these boxes in 2020.

Landfill Regulatory Issues: In 2018 LFUCG was issued a new Kentucky Pollutant Discharge Elimination System (KPDES) wastewater discharge permit for the landfill's Leachate Wetland Treatment System (WTS). Changes in the permit sampling requirements and lowering of several discharge limits resulted in permit compliance issues. In 2020, LFUCG began working with the Kentucky Division of Water to resolve the compliance issues by assessing potential upgrade to the WTS. Since the extent of corrective action measures required to upgrade the WTS were unknown at that time, it was determined USS could not be pursued until the compliance issues were resolved. In 2024 a construction contract was awarded to complete upgrades to the WTS.

2024 Utility Scale Solar Research and activities

In early 2024 LFUCG began again to be contacted frequently by USS developers. There are multiple contributing factors among them are favorable financial incentives for Green Development, reduced cost for solar equipment, corporate entities seeking long-term "Green Energy" sources, changes in Kentucky legislation, etc. As a result of the increased number of inquiries to LFUCG as well as the public announcement of two USS projects adjacent to HPLF, DES was asked to revisit the feasibility of USS at HPLF. DES staff focused on the regulatory items and landfill impacts focused on in 2020. In preparing updated research Environmental Quality and Public Works (EQPW) and DES staff quickly realized that outside consultation would be needed due the changes in regulations, zoning, and technical knowledge needed to validate the internal findings. DES completed a table matrix (Addendum C) that identified the various areas in the landfill, potential for USS development, and challenges facing each area. This information was used as the basis for a Request for Proposal for a qualified consultant to validate internal information and to confirm feasibility for USS at HPLF. Additionally, EQPW and DES staff developed a multi-phase approach to limit LFUCG expenditures for continued research and pursuit of USS at HPLF.

Phased Approach:

Phase 0 (Completed) – Internal Research and Data collection, 2020 (Add. B) & 2024 (Add. C).

Phase 1(Completed) – Desktop Screening Study by CMTA 2024 (Add. D)

Phase 2A – Investment Grade Study: Survey, Testing, etc. by External Consultants.

Phase 2B – Develop Request for Proposal and Lease, by External Consultants.

Phase 3 – Lease & Construction, Construction Administration by External Consultants.

Each successive phase is predicated on the continued economic feasibility of the project.

Phase 1 Results

Zoning: Silicon Ranch proposed USS on 800 acres of property in the rural area. Since that use is not presently permitted in the rural area, Silicon Ranch filed an application for ZOTA. The proposed ZOTA was modified by the Planning Commission to prohibit USS in the rural area. The recommended ZOTA is now before the Council for action. The Council has placed the ZOTA in committee. If the Council accepts the recommendation of the Planning Commission, Silicon Ranch will not be able to pursue the project. East Kentucky Power Cooperative's 387-acre proposal, as a regulated utility, is not subject to local zoning approval. However, it is subject to Public Service Commission review and approval; that decision is pending. It is likely that use of HPLF, since it is owned by LFUCG, would not be subject to zoning regulation (if the government decided to exercise its immunity), but the issue would need to be further examined when LFUCG determines exactly how the development of USS would proceed. The Urban County Council has the option to modify the ZOTA referenced above to allow USS on the landfill.

Economic Feasibility: 312 of the 387 acres were identified in the CMTA Study as having the potential for USS with an estimated lease ranging from $171,000 - $265,000 per year for twenty years, with the potential for two 5-year extensions. CMTA provided an estimate for Phase 2A of $80,000 - $115,000. Depending on the amount and length of settlement testing Phase 2A would take 12-24 months. CMTA provided an estimate for Phase 2B of $50,000 - $70,000. Phase 2B could run concurrently with Phase 2A beginning around the 50-75% completion point of Phase 2A. CMTA and EQPW staff are in agreement that completing Phases 2A and 2B would result in higher annual lease payments as a result of more accurate data and less unknowns for potential developers bidding in a potential Phase 3 Request for Proposal to lease and build USS at the HPLF.

Landfill Regulatory Issues: EQPW and DES staff held a video conference with the Kentucky Division of Waste Management (KDWM) to discuss the status of closed landfills as it relates to USS. Currently, there have been no USS redevelopment projects on closed landfills in the state. While KDWM did not identify any regulations that would outright prohibit USS development, they emphasized that such redevelopment would not absolve LFUCG of existing compliance obligations, including ongoing monitoring requirements. USS could also potentially extend the 30 years post-closure requirements. KDWM also expressed concerns about redevelopment, noting that any failures or non-compliance by a USS operator would ultimately be the responsibility of LFUCG, as the owner of the closed landfill. Additionally, the construction of USS could lead to more concentrated runoff from the panels, which may pose an increased risk to the long-term integrity of the landfill cap and landfill leachate and methane management systems.

Conclusion and Next Steps

There are several items to consider regarding next steps for LFUCG. There is a very vocal group opposed to USS on prime agricultural land in Fayette County. Requiring reuse of the capped landfill provides some relief from this but may not be fully excepted as several areas to be developed could be considered as having agricultural potential. Silicon Ranch is likely to appeal the ZOTA decision and continue to pursue USS in or near Fayette County. EKPC's project whether approved or denied will also keep USS in the forefront of the public's attention. The results of the recent Presidential Election may alter some fiscal programs, or Environmental Regulations at the National level that may impact the overall USS market. Pausing or moving slowly to see the impacts these potential changes may have on USS development is unlikely to negatively impact the long-term options for

LFUCG and USS on HPLF. One sub-component of Phase 2A the Settlement Study could be initiated now to begin measuring the settlement rate of the capped cells. Settlement over time is a data set we currently do not have CMTA and Tetra-Tech both indicated would be a valuable data set for potential USS developers, this data is also useful for management and monitoring of the landfill regardless of development.

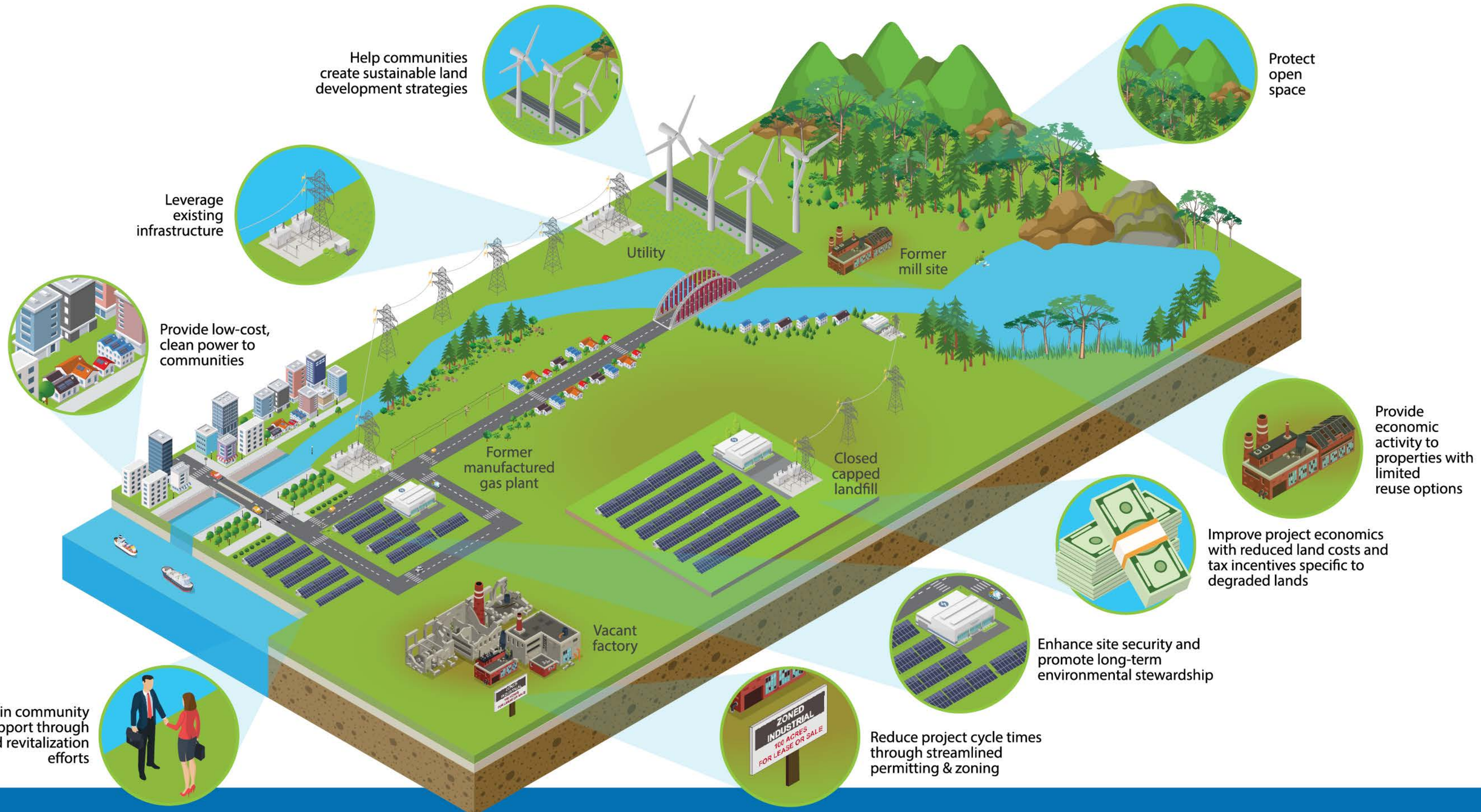
Addendum A

EPA – RE-Powering America's Land

United States Environmental Protection Agency

RE-Powering America's Land

Potential Advantages of Reusing Potentially Contaminated Land for Renewable Energy



RE-POWERING AMERICA'S LAND INITIATIVE

Through the RE-Powering America's Land initiative, the U.S. Environmental Protection Agency promotes the reuse of potentially contaminated lands and landfills for renewable energy through a combination of tailored redevelopment tools for communities and developers, as well as site-specific technical support. The initiative aims to revitalize degraded land by promoting renewable energy as a productive end use, when aligned with the community vision for the site.

This strategy creates new markets for potentially contaminated lands, while providing a sustainable land development strategy for renewable energy. RE-Powering aims to turn liabilities into assets for surrounding communities by fostering collaborative networks between the energy and remediation sectors. This fact sheet provides an overview of the potential advantages of this development approach.

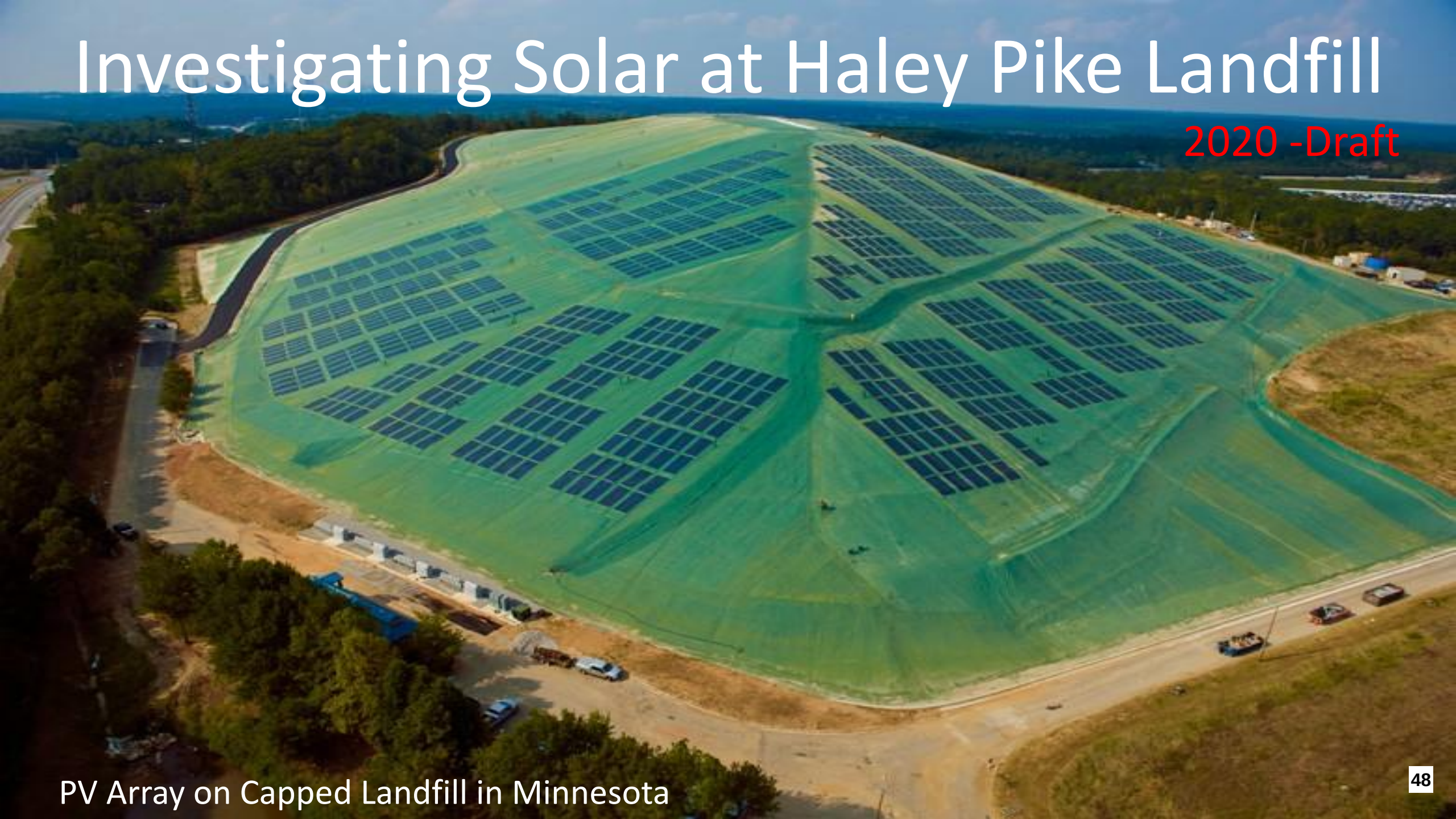
MADE FROM 100% RECYCLED LAND

Addendum B

2020 Internal Research - Summary

Investigating Solar at Haley Pike Landfill

2020 -Draft



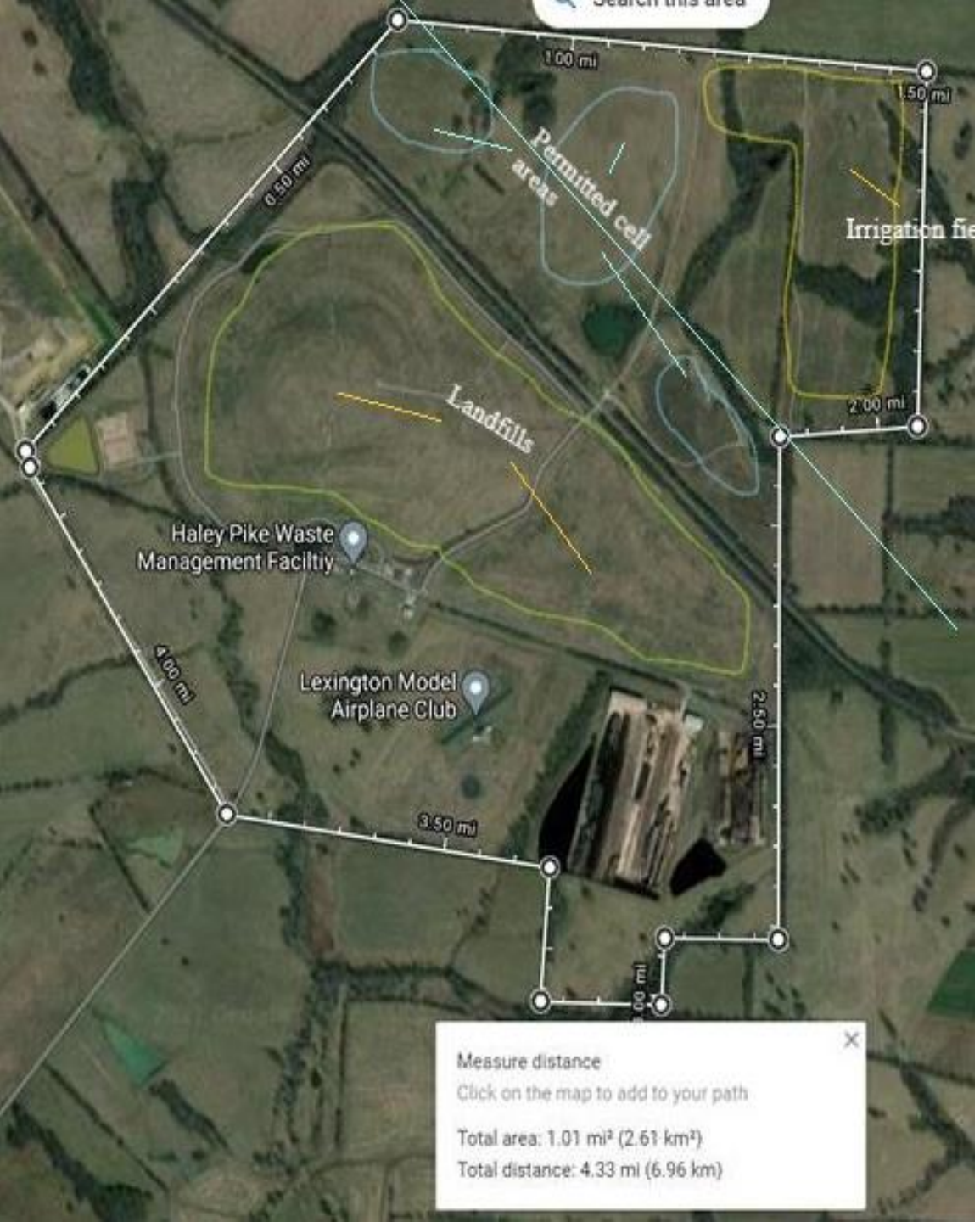
PV Array on Capped Landfill in Minnesota

Economics

- Initial interest @ $500/Acre annual lease. 25-30 year term
- 80-100 acre minimum size 20-25MW
- Cost avoidance for vegetation management of leased areas
- RFP could include clause for LFUCG purchase of renewable energy
- No capital investment by LFUCG
- Not a novel idea, many currently in operation

Development

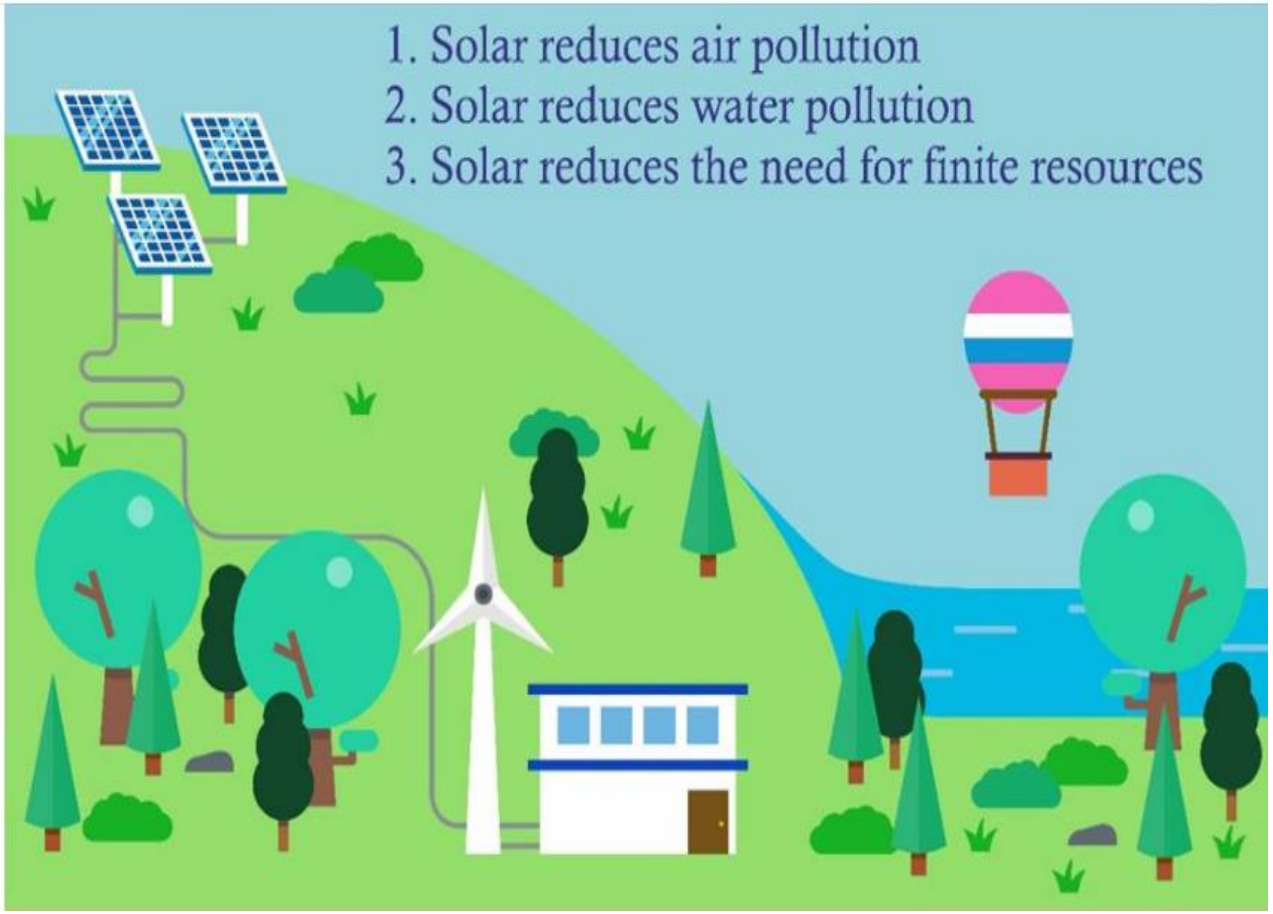
- All the risk lies with the lessor/vendor.
- Use of Ballasted infrastructure for Solar Panels and Fencing.
- Maximum Slopes of 15%
- Location and stand off from Methane Vents integrated into layout
- Construction practices that take cap protection into consideration
- Nearby HV transmission line



Operations

- Vegetation management incorporated, into lessee responsibility
- Staff onsite 2-3 times weekly to inspect and maintain.
- Borders two utility jurisdictions KU & Clark Energy
- End of life plan incorporated into RFP
- Lessor to have experience with Landfill Solar Projects & EPA Compliance

Social and Environmental



- Reduce carbon footprint and dependence on fossil fuels
- Contributes to US Energy independence
- Reuse of landfill reduces need for solar development on prime farmland
- Enhances LFUCG long term environmental goals.

Next Step

- Determine if LFUCG Executive Leadership is supportive
- Determine Key Staff
- Determine Rough or Hard area limits at landfill – Do we meet the 80-100 threshold?
- Legal input, concept first then RFP
- Research similar projects

Addendum C

2024 Internal Research – Summary

Haley Pike Landfill Preliminary Photovoltaics Evaluation – Unit I, Phase 1 (Area A)					
Technical Consideration	**Goal for PV**	**Unit 1, Phase 1 Detail**	**Summary**	**Data Gap**	**Challenges**
Acreage	Min. 4 contiguous acres	45 Acres Total See below under slope/stability regarding contiguous acreage.	Meets Minimum Goal	None Identified	None Identified
Age	>2-3 years post closure	~43 years post closure	Meets Goal	None Identified	None Identified
Waste Composition	Not an Elevated Temperature Landfill (ETLF)	Assumed to be mostly MSW. No indications of elevated temperatures.	No Red Flags Identified	Records regarding waste composition have not been readily found in DES files or DES archive records.	None Identified
Settlement	Limited Settlement or Uniform Settlement	Some areas with ponded water have occurred and some regrading has been completed. Possible intermittent differential settlement. Onsite anecdotal evidence doesn't indicate major settlement issues.	No Red Flags Identified	No Formal Settlement Evaluations have been completed.	No current significant issues identified
Slope and Stability	Ideally less than 5% slope. Above 10% can provide design challenges	Based on a 2006 for construction survey, approximately 1/3 of the landfill has grades <5% (approximately 15 contiguous acres). Remaining acreage is likely below 10% grade. However, some setback from the edge would be required to stay inside of leachate collection manholes.	Contiguous areas >4 acres with <5% slopes identified.	Updated Survey Recommended.	None identified
Orientation	Due south or within +/- 20°-30° from due south	Given the shallow grade, south facing slopes are present and are unobstructed.	Appears to meet goal	None Identified	None Identified

Haley Pike Landfill Preliminary Photovoltaics Evaluation – Unit I, Phase 1 (Area A)					
Technical Consideration	**Goal for PV**	**Unit 1, Phase 1 Detail**	**Summary**	**Data Gap**	**Challenges**
Closure and Regulatory Status	Easily identified regulatory process	Would require design, stability analysis, updated closure cost estimate, and surface water redesign as necessary in order to submit a Closure Plan Modification.	Lengthy multi-year process from starting design to possible approval.	A feasibility study with a preliminary plan and discussions with the State would likely shed more light on the potential for approval and the potential impacts to post closure requirements.	It is likely the 30 year post closure care period would be extended if the use modification was approved. This would extend the regulatory required sampling and oversight.
Landfill Cap	A competent cap that allows for protection of waste, minimizes erosion and diverts stormwater away from the landfill in order to reduce leachate production.	The bottom of the landfill is not lined. It is assumed to be constructed on bedrock, or close to bedrock. Based on available information, the cap of the landfill is 12 inches of clay soil overlain by 6 inches of topsoil with vegetation.	Not Ideal.	Lack of data to confirm cap construction and current integrity.	Because the landfill is a 1 foot clay cap, the weight of the panels could cause settlement or added water infiltration.

Haley Pike Landfill Preliminary Photovoltaics Evaluation – Unit I, Phase 1 (Area A)					
Technical Consideration	**Goal for PV**	**Unit 1, Phase 1 Detail**	**Summary**	**Data Gap**	**Challenges**
Erosion Control and Stormwater Management	Compatible with current stormwater management systems.	The current landfill cap allows for water infiltration. The landfill has a relatively low grade which increases the potential for ponding on the cap. There are two diversion ditches on the landfill cap but these diversion ditches are short and likely do not divert a large quantity of water off the cap.	There would likely be a need to perform better stormwater management with the addition of PV in order to prevent erosion.	There is no current data on the amount of infiltration and leachate generation at Unit 1, Phase 1. Leachate generation data is a total of both phases of the closed landfill (production amounts not separated by waste cell). Current leachate generation amounts for Unit 1 Phase 1 would be helpful.	Controlling erosion channeling and ensuring that leachate production doesn't increase would need to be considered. It is likely the current stormwater management controls are not adequate and would need to be redesigned.
Leachate Collection and manholes	Array will not impact leachate collection system or collection.	Connected to WTS in 2008. There are 25 leachate manholes around the perimeter of the landfill. Nine were recorded as being at 100% of the LEL for methane during the last sampling event.	No Red Flags Identified. It is likely the array could be designed so as to not impact the leachate collection system.	None Identified	None Identified

Haley Pike Landfill Preliminary Photovoltaics Evaluation – Unit I, Phase 1 (Area A)					
Technical Consideration	**Goal for PV**	**Unit 1, Phase 1 Detail**	**Summary**	**Data Gap**	**Challenges**
Landfill Gas	Array will not impact gas collection system.	There are five methane vents associated with Unit 1/Phase 1. One was recorded as being at 100% of the LEL for methane during the last sampling event.	No Red Flags Identified. It is likely the array could be designed so as to not impact the gas collection system given there are only five vents. Safety considerations would need to be made during construction.	No design drawings for the five methane vents were located.	None Identified.
Institutional Controls	Property already zoned for solar arrays.	Zoned A-R Exempt	Not in an acceptable zone	None Identified.	The EX-1 property would have to be rezoned to have any use other than operation of a landfill. Solar farms would be permitted in the I-2 zone.
Maintenance Requirements	Solar Arrays compatible with or do not impede current maintenance requirements.	Monitoring Well 1S and Outfall 006 are near Unit 1, Phase. Mowing, access for repairs and inspections would need to be maintained.	Can likely be designed to continue with maintenance requirements.	None Identified.	None Identified.

Haley Pike Landfill Preliminary PV Evaluation – Unit I, Phase 2 (Area B)					
Technical Consideration	**Goal for PV**	**Unit 1, Phase 2 Detail**	**Summary**	**Data Gap**	**Challenges**
Acreage	Min. 4 contiguous acres	97 Acres	May Meet Minimum Goal	See below slope/stability	See below slope/stability
Age	>2-3 years post closure	~10 years post formal closure	Meets Goal	None Identified	None Identified
Waste Composition	Not an Elevated Temperature Landfill (ETLF)	Primarily MSW however top of the landfill (center) is primarily CD&D. No indications of elevated temperatures.	No Red Flags Identified	Records regarding waste composition have not been readily found in DES files or DES archive records.	None Identified
Settlement	Limited Settlement or Uniform Settlement	Onsite anecdotal evidence doesn't indicate major settlement issues.	No Red Flags Identified	No Formal Settlement Evaluations have been completed.	No current significant issues identified
Slope and Stability	Ideally less than 5% slope. Above 10% can provide design challenges	The only area that appears to have slopes <5% is the top deck of the landfill. This area is estimated to be between 2-4 acres; however surveys have not been completed to document current slopes. From the top deck, the landfill quickly increases to >10% slope.	Contiguous areas >4 acres with <5% slopes **possibly** identified.	Updated Survey Recommended.	Very limited contiguous acreage with ideal slopes.
Orientation	Due south or within +/- 20°-30° from due south	Portions of the landfill face due south without obstruction.	Appears to meet goal	None Identified	None Identified

Haley Pike Landfill Preliminary PV Evaluation – Unit I, Phase 2 (Area B)					
Technical Consideration	**Goal for PV**	**Unit 1, Phase 2 Detail**	**Summary**	**Data Gap**	**Challenges**
Closure and Regulatory Status	Easily identified regulatory process	Would require design, stability analysis, updated closure cost estimate, and surface water redesign as necessary in order to submit a Closure Plan Modification.	Lengthy multi-year process from starting design to possible approval.	A feasibility study with a preliminary plan and discussions with the State would likely shed more light on the potential for approval and the potential impacts to post closure requirements.	It is likely the 30 year post closure care period would be extended if the use modification was approved. This would extend the regulatory required sampling and oversight.
Landfill Cap	A competent cap that allows for protection of waste, minimizes erosion and diverts stormwater away from the landfill in order to reduce leachate production.	The bottom of the landfill is not lined and is assumed to be on bedrock or close to bedrock surface. The Cap system of the landfill consists of (top to bottom): 1. A 36” vegetative cover layer 2. A double sided geocomposite for drainage (infiltration protection) 3. A flexible membrane liner 4. A double sided geocomposite for gas venting (gas vents installed within this section between geocomposite and liner)	Given the 3 feet of soil and the flexible membrane liner, the current cap system is considered competent and would likely support the addition of PV arrays without impacting the Cap using ballasted arrays.	None Identified	None Identified

Haley Pike Landfill Preliminary PV Evaluation – Unit I, Phase 2 (Area B)					
Technical Consideration	**Goal for PV**	**Unit 1, Phase 2 Detail**	**Summary**	**Data Gap**	**Challenges**
Erosion Control and Stormwater Management	Compatible with current stormwater management systems.	The current landfill cap is designed to reduce water infiltration and has a system of adequate diversion ditches. Given the steeper slope, ponding is not a frequent issue with Unit 1, Phase 2.	PV could likely be added without significant reconfiguration of stormwater management systems.	None Identified	None Identified
Leachate Collection and manholes	Array will not impact leachate collection system or collection.	Connected to WTS in 2005. There are 27 leachate manholes around the perimeter of the landfill (including pump station). Fifteen were recorded as being at 100% of the LEL for methane during the last sampling event.	No Red Flags Identified. It is likely the array could be designed so as to not impact the leachate collection system.	None Identified	None Identified
Landfill Gas	Array will not impact gas collection system.	There are approximately 97 methane vents that protrude approximately 3-4 feet from the ground surface. These vents are monitored quarterly. The vents are typically approximately 100 feet from each other in a roughly triangular offsite pattern. 63 vents were recorded as being at 100% of the LEL for methane during the last sampling event.	Arrays would need to be designed around the existing methane vents. Safety considerations would need to be made during construction.	None Identified	There are a significant number of methane vents that would need to be designed around assuming the slopes were not an issue. For the top deck of the landfill which meets the <5% grade, there are approximately 5 vents that would need to be designed around.

Haley Pike Landfill Preliminary PV Evaluation – Unit I, Phase 2 (Area B)					
Technical Consideration	**Goal for PV**	**Unit 1, Phase 2 Detail**	**Summary**	**Data Gap**	**Challenges**
Institutional Controls	Property already zoned for solar arrays.	Zoned A-R Exempt	Not in an acceptable zone	None Identified.	The EX-1 property would have to be rezoned to have any use other than operation of a landfill. Solar farms would be permitted in the I-2 zone.
Maintenance Requirements	Solar Arrays compatible with or do not impede current maintenance requirements.	Monitoring Well 2S, 2D, 3S, 3D and 4D plus Outfalls 001, 002 and 005 are near Unit 1, Phase. Methane vents are located across entire landfill cap. Accessing methane vents would need to be provided. Mowing, access for repairs and inspections would need to be maintained.	Can likely be designed to continue with maintenance requirements.	None Identified.	None Identified.

Addendum D

2024 CMTS Desktop Study

Lexington Fayette Urban County Government – Environmental Quality & Public Works

Haley Pike Landfill
Photovoltaic Screening Study
Phase 1

10/31/2024

CMTA

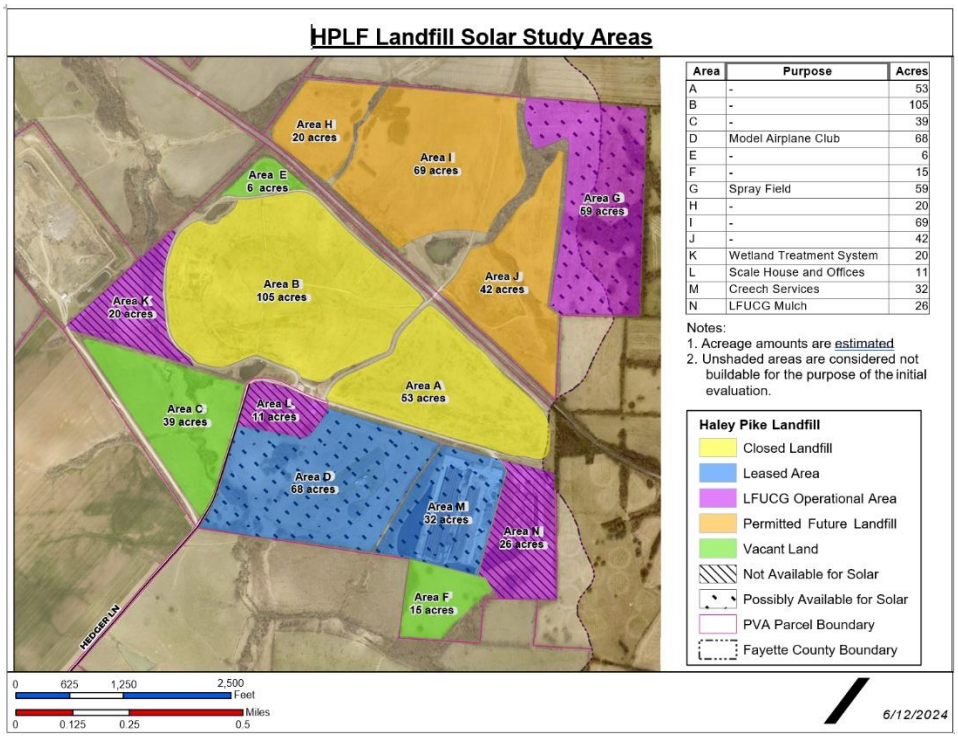
Contents

GENERAL

SITE BACKGROUND

The Haley Pike Landfill Complex is located on four separate parcels of property in eastern Fayette County and western Clark County. The parcel in Fayette County, with property addresses of 4172 and 4253 Hedger Lane, is 650.44 acres and is split by active railroad tracks. Parcels in Clark County, with property address 4172 Hedger Lane, include a 1.85 acre parcel, a 0.22 acre parcel and a 34.35 acre parcel. These three parcels are adjacent to and contiguous with the Fayette County parcel.

The Haley Pike Landfill is a two-phase closed municipal solid waste (MSW) landfill. There are two separate closed landfill cells. In addition to the landfill cells, the property contains other supporting operational areas. These areas include a Wetland Treatment System area for treating landfill leachate, a scale house and office area, a mulch pad area and a spray field for application of mulch pad stormwater run-off. The property also contains two leased areas, an area used by a third party for processing mulch (Creech Services) and an area used by a Model Airplane Club. Remaining areas of the property are either vacant mowed fields or areas that have been permitted as future landfill expansion areas, but which are currently mowed fields.



The landfill operations have two active permits:

- A Solid Waste Permit with the Kentucky Department for Environmental Protection, Division of Waste Management (Solid Waste Permit # SW03400007) for regulating the closed landfill cells, potential future landfill cells, the mulch operations, and the spray field.
- A Kentucky Pollutant Discharge Elimination System (KPDES) Permit (Permit # KY0092100) for regulating stormwater discharges from the landfill area and from the wetland treatment system used for managing landfill leachate.

PHASE 1 STUDY – SCOPE OF WORK

- Perform a desktop study consistent with a professional screening-level study to evaluate the potential for placement of a Utility Scale Solar Array at Haley Pike Landfill based on necessary factors to include, but not limited to:
    - Site Suitability Evaluation including considerations related to the existing landfill infrastructure (e.g. methane vents, leachate collection system, slope and stability evaluation);
        - Utilize the provided landfill area breakdown to classify into these categories.
            - Suitable for Solar, marginally suitable, not suitable or not available
            - Note any complimentary or alternative uses for marginally or not suitable areas.
            - LFUCG will most likely reserve 8-10 acres for a future transfer station.
                - Flat, adjacent to existing roads.
        - Stormwater management and run-off considerations
    - Regulatory Analysis and Environmental Compliance, Permitting and Zoning Considerations.
    - Financial and Economic Viability
        - Provide LFUCG with probable lease structure and payments.
        - LFUCG will not be involved in the financing, i.e. no public bonding by LFUCG.
    - Cost/Risk/Benefit Evaluation for LFUCG for Phase II and Phase III
    - Contracting and any other regulatory considerations for a potential lessee.

- If the project is deemed potentially feasible, the scope of work should also include:
    - Preliminary Recommendations for Design Considerations at a Schematic level.
    - Provide an outline and timeline of steps and benchmarks for possible future phases.
    - Provide a list of critical elements needed to include in Phase IIA Investment Grade Feasibility Study.
    - Long Term Management and Regulatory Considerations.
    - Example(s) of similar municipal landfill reuse projects for construction of PV Arrays and other uses.

SITE/PARCEL DESCRIPTION

AREA DESCRIPTIONS & USE CASES

The table below outlines information about the specific location and acreage available for the given area. During the site visit with the LFUCG & Tetratech Team, special attention was put toward the discussion of usability of each site given its past use case, current use case and future use case. These discussions and site observations helped form the comments in the special notes and the site viability section found in this desktop study.

Site Info			
Location	**Description**	**Area (Acreage)**	**Special Notes**
A	Closed Landfill	53	Type of Cap and Age makes this site less desirable. Settlement Study is recommended.
B	Closed Landfill	105	High slope limits the amount of buildable area. Settlement Study is recommended.
C	Vacant Land	39	Undeveloped site allows for piles to be driven instead of a ballasted racking system. Ideal for PV development.
D	Leased Area (Model Airplane Club)	68	Model Airplane club would need to be moved, site restored. Ideal for devlopment once restored.
E	Vacant Land	6	Undeveloped site allows for piles to be driven instead of a ballasted racking system. Ideal for PV development.
F	Vacant Land	15	Undeveloped site allows for piles to be driven instead of a ballasted racking system. Ideal for PV development.
G	Irrigation Field	59	Irrigation field makes this site not viable for PV development.
H	Permitted Future Landfill / Vacant Land	20	Undeveloped site allows for piles to be driven instead of a ballasted racking system. Ideal for PV development.
I	Permitted Future Landfill / Vacant Land	69	Undeveloped site allows for piles to be driven instead of a ballasted racking system. Ideal for PV development.
J	Permitted Future Landfill / Vacant Land	42	Undeveloped site allows for piles to be driven instead of a ballasted racking system. Ideal for PV development.
K	Wetland Treatment System	20	Site conditons do not make this site not viable for PV development.
L	LFUCG Operational Area	11	Existing use case does not make this site viable for PV development.
M	Creech Services	32	Existing use case does not make this site viable for PV development.
N	LFUCG Mulch Area	26	Existing use case does not make this site viable for PV development.
-	Total	565	-

PHOTOVOLTAIC STUDY

SITE SUITABILITY & PRELIMINARY CAPACITY CALCULATIONS

The table below outlines the total area and suitability of each site to accommodate a utility scale PV system. An estimated % of usable land area has been selected for each site based on the site visit, review of site documentation, and modeling of the sites in a CMTA proprietary modeling software for utility scale solar projects. Key factors in determining usability of land include the topography, land settlement rates, and presence of physical obstructions, such as methane vents. Within the appendices, one will find a calculation of kWdc per acre for a ballasted/pile driven stationary racking system. This capacity per acre was used to calculate the potential capacity (MWdc) for a location while also considering the viable % of acreage available.

Site Info		Area & PV Capacity Calculations				Conditions Assesment		
Location	Description	Area (Acreage)	Buildable Area (% of Total Acreage)	Buildable Area (Acreage)	Capacity for PV (MWdc)	Stormwater Runoff	Slope & Sub-Terranain Stability	Site Suitability for PV
A	Closed Landfill	53	50%	26.5	9.35	Medium/High	Low Slope, Med/High Settling Potential	Medium
B	Closed Landfill	105	50%	52.5	18.53	Medium	Low/Medium Slope, Medium Settling Potential	Medium
C	Vacant Land	39	90%	35.1	12.39	Low	Low Slope, Minimal Settling Potential	High
D	Leased Area (Model Airplane Club)	68	90%	61.2	21.60	Low	Low Slope, Minimal Settling Potential	High
E	Vacant Land	6	90%	5.4	1.91	Low/Medium	Low Slope, Minimal Settling Potential	High
F	Vacant Land	15	90%	13.5	4.77	Low/Medium	Low Slope, Minimal Settling Potential	High
G	Irrigation Field	59	0%	0	0.00	Low	Low Slope, Minimal Settling Potential	Unusable
H	Permitted Future Landfill / Vacant Land	20	90%	18	6.35	Low/Medium	Low Slope, Minimal Settling Potential	High
I	Permitted Future Landfill / Vacant Land	69	90%	62.1	21.92	Low/Medium	Low Slope, Minimal Settling Potential	High
J	Permitted Future Landfill / Vacant Land	42	90%	37.8	13.34	Low/Medium	Low Slope, Minimal Settling Potential	High
K	Wetland Treatment System	20	0%	0	0.00	Medium/High	Medium Slope, Settling Potential	Unusable
L	LFUCG Operational Area	11	0%	0	0.00	Low	Low Slope, Minimal Settling Potential	Unusable
M	Creech Services	32	0%	0	0.00	Low	Low Slope, Minimal Settling Potential	Unusable
N	LFUCG Mulch Area	26	0%	0	0.00	Low	Low Slope, Minimal Settling Potential	Unusable
-	Total	565	N/A	312.1	110.17	-		

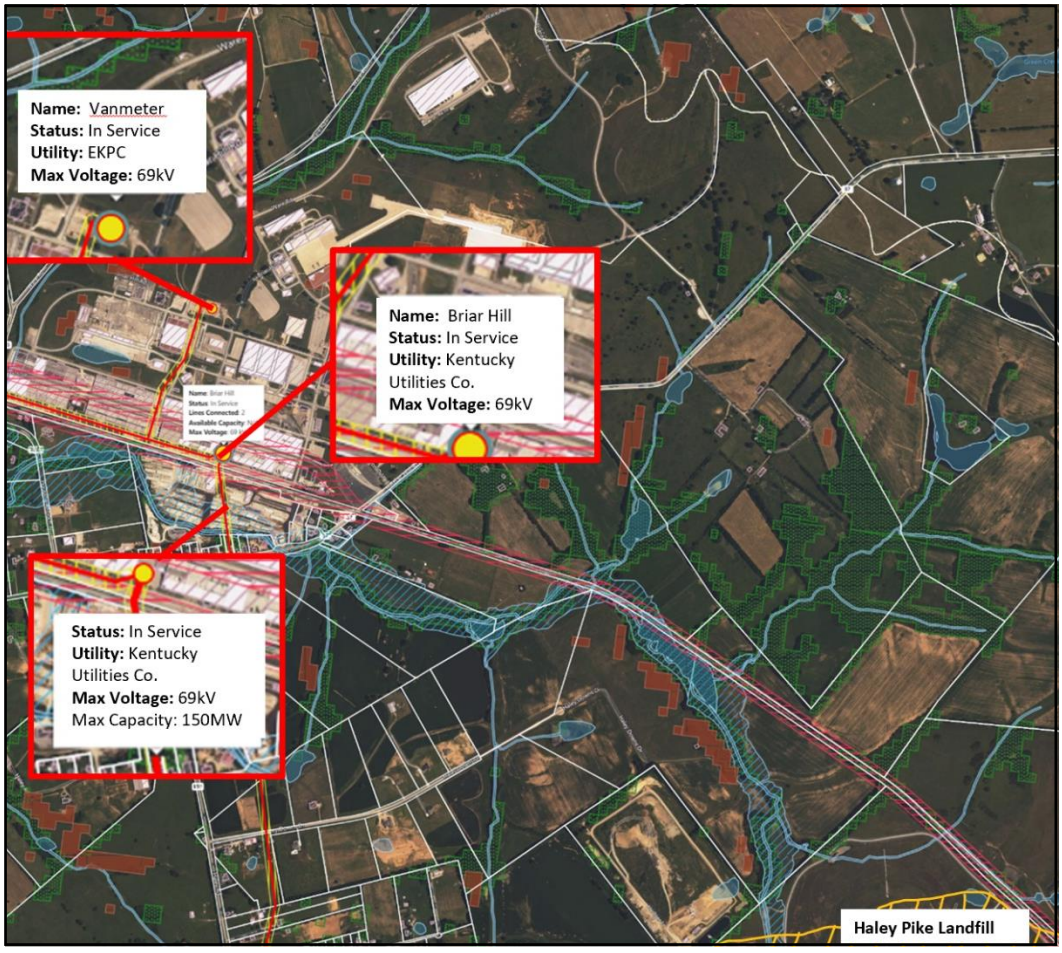
PHOTOVOLTAIC STUDY CONTINUED

SURROUNDING UTILITY INFRASTRUCTURE

The aerial image below depicts the two closest utility sub stations to the Haley Pike Landfill site, which include:

1. Vanmeter Substation owned by EKPC, 69kV Feeders.
2. Briar Hill Substation owned by Kentucky Utilities, 69kV Feeders.

Developers pay close attention to the distance of utility lines to a potential site as this impacts the price to build and interconnect of the PV project. The price to build and interconnect the project directly impacts the yearly lease payments as well.



REGULATORY ANALYSIS

The regulatory section of this study looked at the planning and zoning/land use regulations that would potentially apply to a project on the Haley Pike Landfill and the surrounding parcels.

PHOTOVOLTAIC STUDY CONTINUED

This study focuses on the viability of the landfill land to be leased for a 20-30 year period. The type of entity (Private Company or Utility) that leases the land is a key factor because of the impact on the regulatory path that eventually leads to permission to construct the project.

For a private entity leasing the land, local zoning regulations and ordinances typically apply to the development of the site. This would add time, additional stakeholders and potential costs in the development stage of the project.

For a utility leasing the land, local zoning/land use regulations and ordinances would not apply. Therefore, the development of a project would have less steps leading to a quicker path to construction.

Should this study go into the phase 2 stage, additional diligence and research will be done to understand the regulatory requirements that would apply to these parcels. Special attention will be placed on the fact that LFUCG has ownership of the land itself and vetting the requirement of a government entity being required to comply with zoning regulations on its own properties. Understanding these details could impact the statement being made above that discusses the regulatory path for a private company to lease the land or a utility to lease the land. If LFUCG's ownership of its own land is not subject to zoning regulations, then how could a private company leasing said land be subject to zoning regulations on land that is owned by LFUCG?

FINANCIAL & ECONOMIC VIABILITY

This section of the desktop study will discuss the potential financial benefits the project will bring to LFUCG. The relationship between the PV developer and LFUCG, will primarily consist of the developer leasing the land directly from LFUCG in exchange for yearly lease payments for said land. Typically, these contracts are set up for 20 years with (2) 5 year options to extend for a total of 30 years.

CMTA has calculated the amount of usable area that is favorable for PV development. The table below outlines the relationship between the buildable acreage and total capacity of PV that can fit on this acreage. Another important factor to take into account when estimating an annual lease rate is the vicinity or distance to a local substation of high voltage feeder. CMTA has outlined the estimated lease rates per buildable acre in the table below and extrapolated that to an annual lease price for all 312.1 buildable acres. The annual lease rate is then extrapolated for the 20 year term of the contract, which helps outline the longterm financial benefit of the project for LFUCG.

Area	Buildable Area (Acreage)	Average Annual Lease Price Estimate	Average Estimated 20-Year Lease Estimate
A	26.5	$18,550	$371,000
B	52.5	$36,750	$735,000
C	35.1	$24,570	$491,400
D	61.2	$42,840	$856,800
E	5.4	$3,780	$75,600
F	13.5	$9,450	$189,000
H	18	$12,600	$252,000
I	62.1	$43,470	$869,400
J	37.8	$26,460	$529,200

Estimated Lease Price (Per Acre/yr)	Buildable Area (Acreage)	Annual Lease Price Estimate	Estimated 20-Year Lease Estimate
$550-$850	312.1	$171,655 - $265,285	$3,433,100 - $5,305,700

FUTURE VIABILITY OF STUDY PHASES

Phase 2A Scope: Investment Grade Study

The following phase would entail a full investment grade audit study, which would get approval if this desktop study was found feasible and of interest to LFUCG. The study would include the following:

1. *Site Plan & PV Layout/Design*
   - Detailed site plan and PV layout
   - PV layout would not use an average system size per acre rather be an actual PV layout, which would have modules placed on the different viable areas that were highlighted in this report.
   - Layout would contain topographical information and discuss PV viability in certain areas.
   - Discuss and layout method to placing panels in certain areas and associated property boundary line setbacks.
2. *Utility Feasibility Study*
   - Approach Kentucky Utilities & Eastern Kentucky Power
   - Discuss availability capacity on nearby substations
   - Vet any challenges or restrictions that a PV developer may encounter should the project move forward.
3. *Ballasted Racking Study*
   - Identify different ballasted racking solutions and their specific lb/sqft weights.
   - Work with TetraTech to understand the maximum lb/sqft the landfill cap and other areas can support.
   - Work to identify the maximum slope different ballasted solutions will support - this has an impact on the potential capacity section A & B can support. The current assumption of 50% usability would become more exact and identify specific areas within sections A & B.
4. *Settlement Study (Areas A & B)*
   - Work with TetraTech to perform a settlement study on usable area in landfill Areas A & B.
   - This study will provide information to developers on the ability of the landfill cap to support PV.
   - Study would identify potential hazards or concerns TetraTech may have regarding the placement of modules & ballast in areas A & B.
5. *Regulatory Discussions with LFUCG staff*
   - Discuss zoning or permitting issues that a developer may experience
6. *Provide an outline and timeline of steps and benchmarks for possible future phases*

Estimated Budget: $80,000-$115,000

Phase 2B Budget: Develop Request for Proposal and Lease

Following the Investment Grade Study, a request for proposal (RFP) would be compiled and released to solar developers. The RFP would entail the following:

1. *Results of the Investment Grade Study*

a. The information from this study is sufficient for developers to estimate how much it would cost to build a PV project. The amount it costs to build the project is a large determinant in how much they will be willing to pay for the land.

2. *Lease Expectations and Stipulations*
    a. Provide a sample lease agreement that provides details on expectations for the PV project and payment
    b. Include language protecting LFUCG from any damages or mishaps that could happen from a result of the project (i.e. holding developer liable for any accidents that happen during construction)
    c. A legal team should be consulted when making this section to ensure that LFUCG is fully protected legally

Recommended budget: $50,000-$70,000.

Past Landfill Projects: Examples

As of 2023, landfill solar projects in the United States had a capacity of 2.4GW. Listed below are short descriptions of a few past landfill projects in the United States:

1. Kings Park Landfill – New York
    a. 27-acre landfill that was used from 1970-1979. Solar added to the capped landfill in 2019.
    b. 6.0MW solar project that generated $800,000 in lease revenue to the town and used a ballasted mounted solution
    c. Link to description: https://www.partneresi.com/projects/kings-park-landfill-solar-project-new-york/

2. Combe Fill North Landfill – New Jersey
    a. Served as a sanitary landfill from 1966-1981. Closed due to bankruptcy and was improperly closed. Solar developer, municipal government, and engineering firms worked together to properly close the landfill and put solar on capped landfill. Solar project completed in 2023.
    b. 25.6MW solar project that used a ballasted mounted solution
    c. Link to press release: https://solarbuildermag.com/projects/trash-to-treasure-landfill-solar-project-recoups-2-3-million-for-n-j-town/#:~:text=One%20of%20CEP's%20most%20recently,landfill%20solar%20project%20to%20date.

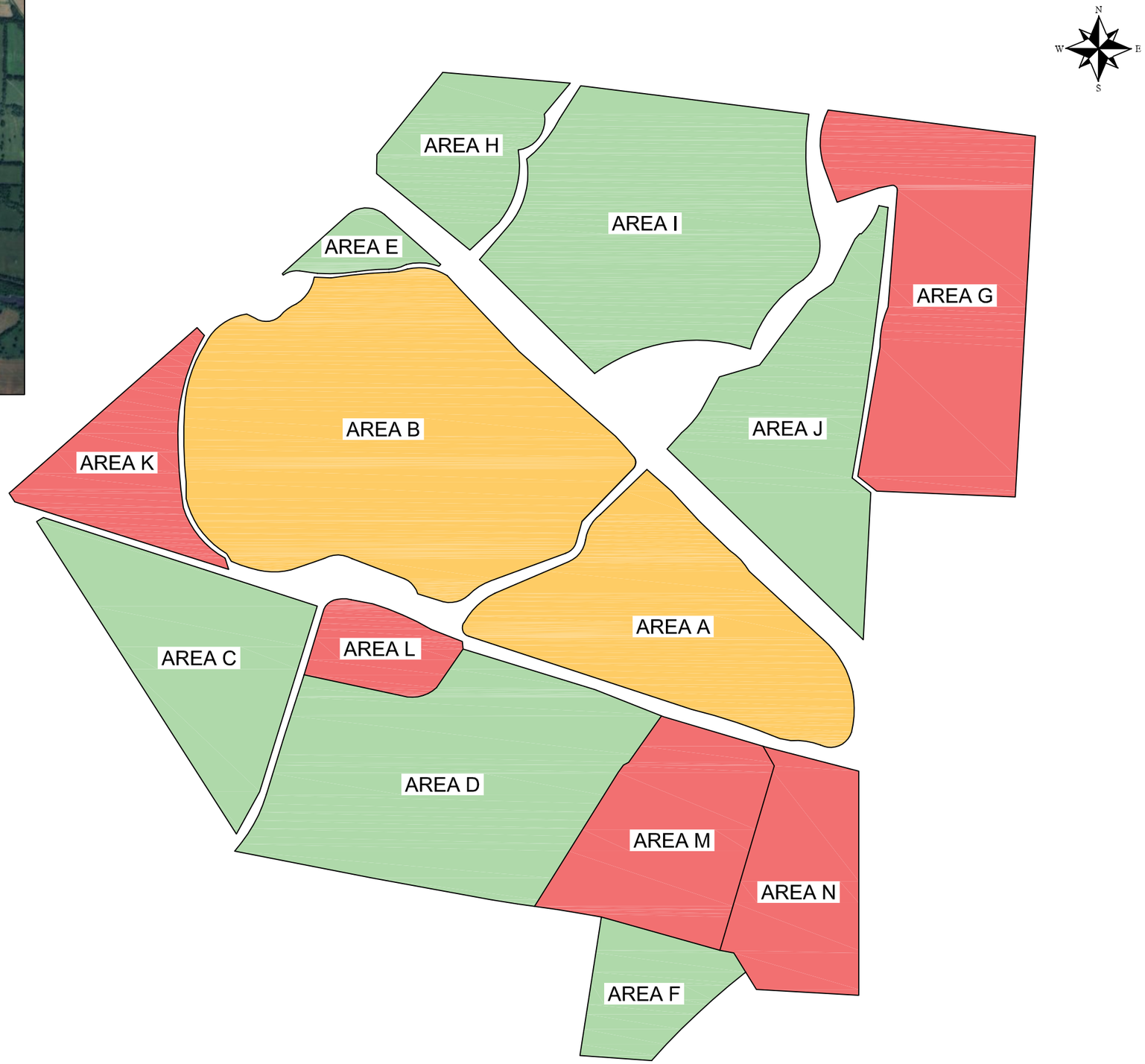
APPENDIX A

LEGEND

- 90% Usable Land for PV
- 50% Usable Land for PV
- 0% Usable Land for PV

AREA DESCRIPTION

A	Closed Landfill
B	Closed Landfill
C	Vacant Land
D	Leased Area for Model Airplane Club
E	Vacant Land
F	Vacant Land
G	Irrigation Field
H	Permitted Future Landfill
I	Permitted Future Landfill
J	Permitted Future Landfill
K	Wetland Treatment System
L	LFUCG Operational Area
M	Creech Services
N	LFUCG Mulch Area



CMTA

PRELIMINARY DESIGN

Haley Pike Landfill
4216 Hedger Lane
Lexington, KY 40516

Area Key

CLIENT/CMTA JOB #:	
DATE:	10/14/2024
DRAWN:	TW
CHECKED:	KK

REVISIONS

PV101

LEGEND

JA 545W Solar Panel

SUMMARY

(208,460) JA 545W Solar Panel

113.61 MW DC System Size

1 Acre = 353kW

CMTA

PRELIMINARY DESIGN

Haley Pike Landfill
4216 Hedger Lane
Lexington, KY 40516

Site Plan

CLIENT/CMTA JOB #:	
DATE:	10/14/2024
DRAWN:	TW
CHECKED:	KK

REVISIONS

PV102

Lexington-Fayette Urban County Government

200 E. Main St
Lexington, KY 40507

Master

File Number: 0250-25

File ID:	0250-25	**Type:**	Committee Item	**Status:**	Agenda Ready
Version:	1	**Contract #:**		**In Control:**	Environmental Quality and Public Works Committee
				File Created:	03/04/2025
File Name:	Items Referred to Committee			**Final Action:**	

Title: Items Referred to Committee

Notes:

Sponsors:

Enactment Date:

Attachments: eqpw referral list_02.27.25

Enactment Number:

Deed #:

Hearing Date:

Drafter:

Effective Date:

History of Legislative File

Version:	Acting Body:	Date:	Action:	Sent To:	Due Date:	Return Date:	Result:

Text of Legislative File 0250-25

Title
Items Referred to Committee

COMMITTEE ITEMS REFERRED

Environmental Quality & Public Works

	Referral Item	Current Sponsor	Date Referred	Last Presentation	Status	Legistar File ID
1	Odor Control Program Update	J. Reynolds	2023-10-31	2025-02-11		0140-24
2	Coordination of ongoing maintenance for projects (infrastructure, beautification, etc.)	J. Reynolds	2024-08-20			
3	Neighborhood Traffic Management Program (NTMP)	L. Sheehan	2024-08-20	2025-02-11		0151-25
4	Traffic Calming with Public Art and Quick Installations	L. Sheehan	2024-08-20			
5	LexTran Update	H. LeGris	2025-02-11			
6	Haley Pike Solar Study	H. LeGris	2025-02-25		2025-03-11	0249-25
7	Review of Stormwater Grants Program	D. Sevigny	2025-02-25			
	Annual / Periodic Updates					
8	Live Green Lexington Update (Public Information and Engagement)	H. LeGris	2021-02-02	2024-10-22		0500-21
9	Urban Forestry / Street Trees Update	H. LeGris	2019-09-17	2024-04-30		0501-21
10	Capacity Assurance Program (CAP) Audit Update	H. LeGris	2018-08-30	2023-04-18		0964-20
11	Energy Initiatives Update	H. LeGris	2017-01-10	2024-03-12	2025-03-11	0572-22
12	Snow & Ice Removal Plan	H. LeGris	2014-02-15	2024-10-22		1034-22
13	Pavement Management Plan	H. LeGris	2020-05-26	2024-04-30	2025-03-11	0440-22
14	Stormwater Projects Update	H. LeGris	2018-02-20	2024-08-20		0922-22
15	Municipal Separate Storm Sewer System (MS4) Update	H. LeGris	2018-02-20	2024-10-22		1122-22
16	Consent Decree and Remedial Measures Plan Update	H. LeGris	2019-01-22	2024-12-03		0222-22
17	Contamination Reduction and ASP Composting Biannual Update	D. Sevigny	2023-11-14	2024-12-03		1200-24

Updated 02.25.25, KJT

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

19

20

21

22

23

COMMITTEE ITEMS REFERRED

Social Services and Public Safety

Referral Item
Crime Reduction Technology
Assessment and Enforcement of Noise Ordinance
Eviction Diversion & Right to Counsel
Comprehensive Review of Code Enforcement
Coordinated Victim Response Plan
Villages Model Initiatives for Lexington
Youth Council
Homeless Encampment Response and Street Outreach Services for OHPI
Review of Fayette County Sheriff's Office
CASA Update
EmPATH Center Update
Review of Sober Living Ordinance

Annual/Periodic Updates
Substance Use Disorder Intervention (SUDI) Update
Office of Homelessness Prevention and Intervention (OHPI) Update
National Alliance on Mental Illness (NAMI) Update
Office of Affordable Housing Initiatives and Projects Update
Recruitment, Retirement, and Retention for Public Safety Update
Community Paramedicine Program Update

Review of Code Enforcement

ONE Lexington Programs Update

Hope Center Expansion Project Update

Family Services Program Update

Partners for Youth Program Update

Updated 02.11.25, KJT

Current Sponsor	Date Referred	Last Presentation
W. Baxter	2021-09-21	2023-05-02
D. Gray	2022-07-05	2023-08-22
D. Wu	2023-01-24	2024-07-02
D. Gray	2023-06-29	2025-02-25
L. Sheehan	2023-05-02	
S. Lynch	2024-08-20	2024-10-08
D. Gray	2024-08-20	
J. Reynolds	2024-09-17	2025-02-25
D. Gray	2024-10-08	
D. Wu	2025-01-28	2025-02-25
L. Sheehan	2025-01-28	
T. Morton	2025-02-11	
J. Reynolds	2022-01-12	2024-05-14
J. Reynolds	2022-06-07	2024-09-17
D. Gray	2018-02-20	2024-09-17
D. Gray	2021-08-10	2024-11-12
J. Reynolds/ W. Baxter	2020-09-22	2024-07-02
J. Reynolds	July 6, 2021	2025-01-28

J. Reynolds	2019-10-08	2023-06-13	
J. Reynolds	2020-09-25	2025-01-21	(Work Session)
S. Lynch	2024-09-12	2024-11-12	
J. Reynolds	2025-01-16	2025-01-28	
J. Reynolds	2025-01-16	2025-01-28	

Status	Legistar File ID
	1065-22
	0840-23
	0702-24
	0204-25
	1008-24
	0203-25
2025-04-15	
	0202-25

	0532-24
	0901-22
	0360-22
	1026-21
	0450-21
	0300-23

0814-22

0080-23

1139-24

0109-25

0110-25

Should this be moved to annual/periodic items?

Requested update for 1/24/22, but no confirmation on this

made an annual item 9/6/22

---

made an annual item on 10/12/21

Code Enforcement Update was heard in GGSS in 2022