



Northeast
Maryland
Waste
Disposal
Authority



Montgomery County Master Plan Proposal (Revised)

*The Future of Responsible Solid Waste Management in
Montgomery County*



May
2018

Project Understanding and Scope Annotations

Introduction

The Montgomery County (County) Department of Environmental Protection (DEP), Division of Solid Waste Services (DSWS) owns and operates an award winning integrated solid waste management system (ISWMS), including waste reduction and education programs, refuse and recycling collection to parts of the County, composting, waste-to-energy, contractual out-of-county landfilling, and maintenance of closed landfills. The DSWS manages these activities through a nearly \$100 million annual budget.

In 2015, the County achieved a Maryland Recycling Act (MRA) recycling rate of 55.01 percent, second highest in the state. The County also achieved a waste diversion rate of 60.01 percent, which included a source reduction credit of 5 percent on top of the recycling rate. It is noteworthy that the County has achieved the State's voluntary recycling and waste diversion goals (55 percent and 60 percent respectively) that were to be achieved by 2020. The County, however, has a recycling goal of 70 percent and has projected to achieve a 71.2 percent recycling rate in 2023.

The County has an existing Comprehensive Solid Waste Management Plan (SWMP) for the period of 2012 to 2023. The SWMP, approved by County Council in March 2015, is scheduled for a review and update as it is intended to be a living document, updated at least once every three years. This update to the SWMP, will strategically evaluate the County's programs and facilities and update the long-term vision to guide the County's actions and investments over the next 20 plus years. It is expected that this strategic plan will help address some of the pressing issues facing the County, including food waste reduction and recovery, zero waste,

the circular economy, China's National Sword policy, incentivizing and improving recycling, and the future of the existing facilities serving the County. The following provides our understanding of project objectives as well as our detailed scope of services.

Understanding of Project Objectives

Over a period of approximately 15 months, the DEP intends to work with a consultant to develop the "The Future of Responsible Solid Waste Management in Montgomery County" (Master Plan). The stated key objectives of the project are to:

- Develop a clear and realistic future vision of the County's solid waste and recycling program and operations with the goal of maximizing waste reduction, reuse/repair, recycling, and sustainable management of materials
- Develop actionable strategies (with projected costs, timelines, and outcomes) to achieve this goal
- Identify impacts on existing solid waste management programs, facilities and operations, including new investments, initiatives, changes in methods of operations, and retiring or replacement of existing facilities

The timing of this planning process is fortuitous within the broader context of the waste industry. At the current time, leading public sector organizations starting with the USEPA and including an increasing number of states, are revisiting and re-framing waste management goals in the context of Sustainable Materials Management and lifecycle cost analysis (LCA). These frameworks are introducing new methods of measuring the economic benefit of waste management, recycling, and diversion programs and strategies. Montgomery County, long considered a leader among local governments,

may be interested in integrating these concepts within its planning process.

Recent waste composition studies show that significant quantities of recyclable materials are discarded as refuse. To the extent possible, the County intends to enhance current programs or develop new programs to recover these recyclable materials. One particular focus of these Improvements will be in the area of multi-family recycling.

One of the more significant opportunities for waste reduction and recycling is the recovery and management of food waste and other organics. County Council Bill 28-16 required the County DEP to develop a “Strategic Plan to Advance Composting, Compost Use and Food Waste Diversion” in the County. The County is actively working on this Strategic Plan which requires consultation with stakeholders and interested parties. The County may find there are opportunities to work with surrounding governments in a regional food waste strategy. Washington D.C. has proposed a curbside food waste/organics collection and composting program. A food waste-to-energy facility is planned in Howard County. It is understood that this Master Plan will continue and advance the work already started in the SWMP.

The County provides collection services to more than 200,000 residences for refuse, bulky waste, yard trim, scrap metals, and dual stream recyclables. These services are divided into two subdistricts, one receiving exclusively contracted collection for all households, and the other with contracted recycling collection but open market (private) refuse collection. As part of the Master Plan, the County is seeking to evaluate possible changes to the program, including incentive programs and pay-as-you-throw (PAYT) approaches. Some potential system improvements – PAYT in particular – may necessitate revisiting the service arrangements where separate entities are collecting refuse and recycling.

The County’s principle solid waste management facilities are the Resource Recovery Facility

(RRF), the Yard Trim Composting Facility, the Shady Grove Processing Facility and Transfer Station, and the Materials Recovery Facility (MRF). The County expects each of the facilities have continued useful lives during the planning period. A component of the Master Plan development will evaluate the condition of each of the principle facilities and assess the feasibility and costs of repairs and replacements to allow these facilities to continue servicing the County.

The County expects the Master Plan to be developed with stakeholder input. Currently the County works with the Solid Waste Advisory Committee (SWAC) and the Dickerson Area Facilities Implementation Group (DAFIG) in addition to ad hoc committees. The development of this Master Plan envisions a robust engagement of stakeholders including citizens, businesses, community organizations, environmental groups, industry, and experts, both inside and outside the County.

HDR will be developing a series of reports associated with each task, described in more detail in the following sections. Each report will include an executive summary and graphical representations suitable for review by elected officials and the public. We will plan to have two rounds of review, each resulting in comments from the DEP. The DEP will combine all comments into one set of comments for each round of review. We will provide the report in MS Word format to ease review by all parties. Budgetary files will be provided in MS Excel format. Final documents will be provided electronically as MS Word and PDF files. All files will be sent by email.

Task 1. Current State Assessment

1a. Waste Sort Review

A critical component of the Master Plan is to baseline the waste generation and composition for the planning area, for use in projections and in evaluating alternatives to the current system. This task will entail a review of County reports and data, including waste sorts to develop a complete picture of the County's waste management system for use in future projections and program analyses.

At this stage, we will review the waste sorts and scale data/ reports to gain an understanding of the County's waste management system. We will review waste sort data to identify the composition of the County's waste streams. Depending on how the waste sorts were conducted, this could include the composition of the refuse and recycling streams, capture, participation and setout rates. Additional information will be taken from reports from the County's facilities to identify the composition of waste managed at the various sites.

1b. Comprehensive Description of the Existing System

HDR has reduced our level of effort regarding the current state assessment based on the understanding that this information will be readily available from the County. We understand the County is rewriting its State-mandated Solid Waste Master Plan (SWMP) from which current and relevant information will be provided to HDR.

As an initial step in this task, HDR would review the information in the most recent SWMP to identify any further information required so as to not duplicate efforts recently undertaken. We will utilize information already documented in the last SWMP and will update that information for consistent presentation if required. As applicable, the following type of information will

be updated with current data or new information requested from DEP:

- Historical and current tonnage for materials collected, recycled, composted, marketed and/or disposed. This will include materials managed at the curb, and self-hauled to various facilities.
- Data on the waste streams managed from different sectors (e.g. single family, multi-family and non-residential as applicable).
- Waste management services provided to the residential and non-residential sectors within the County.
- Number of households, buildings or units that receive service from the County.
- Information on the various facilities utilized in the County's system, including capacity of each facility, throughput, contractual arrangements, usage (e.g. vehicle counts).
- Waste generation rates for different waste streams, and by waste generators (e.g. single and multi-family).
- Financial information on the County's waste management system, including collection, processing and disposal costs.

The HDR Project Team will systematically compile pertinent operational, financial and contractual parameters of the County's collection, processing and disposal systems. Team member MSW Consultants will populate a system-wide collection model that baselines current haulers, routes, customers, tons collected, points of disposition, and associated environmental parameters such as fuel use and transportation-related GHG emissions. The model will capture these parameters for both collection subdistricts. Once the baseline is populated, the model allows "what-if" analysis for new collection technologies, collection frequencies, set-out policies (e.g., converting from bins to carts, implementing Source-Separated Organics, etc.).

Private Disposal and Processing Facilities

The Project Team will inventory the processing and disposal facility infrastructure in and around the County for the recycling, C&D and refuse streams currently managed by the County.

The HDR team will gather information on privately-owned landfills and large recyclables processing facilities in a 300 mile radius centered on Montgomery County, MD, focusing on Maryland, Virginia, West Virginia, Pennsylvania, and portions of North Carolina and Ohio.

Research on compost/organics facilities would be limited to a 100 mile radius which would include Maryland, Delaware, Virginia, Pennsylvania and some of West Virginia.

We will use a combination of sources including state facility reports, online data from websites, and direct calls to facilities. Note that HDR has recently compiled a list of landfills with significant capacity in the region. Our level of effort assumes one call/email for each facility identified to acquire information from private facilities. Note that it is our opinion that gathering realistic tipping fees and/or costs for private facilities may not be practical as this information would be subject to contract terms. Therefore we are assuming a high level collection of costs for processing and disposal. Similarly, it may be difficult to obtain information about private infrastructure (e.g. equipment, tonnages managed).

The scope of work regarding the facilities located outside the County will include compiling: a list of the facilities, their capacities, potential cost for processing/disposing of County materials, as well as high level cost estimates and availability for hauling materials to those facilities.

The team will compile facility name and location, facility type, owner and (for landfills) permitted capacity, remaining capacity, gate rate, (where information is available) and distance to Montgomery County, MD into maps and tables.

County-owned Infrastructure

The facility inventory for County-owned infrastructure will identify processing, disposal, and reuse facilities and services, and will compile their location, current throughput, available capacity, ownership, expected closure (if applicable), and other relevant parameters.

Reuse organizations will be identified in Montgomery County and surrounding counties.

Projections

HDR will develop a series of population projections consistent with other planning processes/projections (e.g. Maryland- National Capital Park and Planning Commission, County, US Census, and other County trends). HDR will review County projections for new housing, immigration, and other trends that could affect population, as well as information available from the County's planning department to identify trends in business growth to develop projections for population, employment, housing (single and multi-family) and business growth.

Projections of waste requiring management will be developed for separate waste streams (e.g. refuse, recycling, organics) based on the status quo waste management system which will reflect the modelled population projections. Considering the results of the waste sorts, HDR will model the impact of increased capture rates for materials that are either a) acceptable in the County's program and not recycled by residents, or b) not currently accepted in the County's current system but could be diverted. This will include the impact of adding a food scrap diversion program, with variable capture rates.

Funding

The County manages the \$100 million/year solid waste program under an enterprise fund system. Funding for the system relies in large part on System Benefit Charges (SBC) in addition to other sources of revenue. HDR will describe the various sources of funds that support the enterprise fund. Additional options for funding

will also be discussed. Based on information provided by the County, HDR will document the costs associated with the County's waste management system, including collection, processing, and disposal for the various waste streams as well as other costs such as education and outreach.

Waste Management Programs and Services

The municipalities in the County either directly collect or contractually collect refuse and recyclables. However, each municipality's services is unique. To create an effective integrated solid waste management system within Montgomery County, the County will need to coordinate their activities with the municipalities such that working together creates a better system than working alone. HDR will summarize the programs in each of the nineteen municipalities and identify where there is reliance on the County programs or identify possible ways for the County and municipalities to work together.

Contract Review

The County manages portions of its integrated solid waste management system through contractual relationships. Examples include (among others) the solid waste collection contracts, the Out-of-County Hauling Contract, the Waste Disposal Agreement with the Northeast Maryland Waste Disposal Authority (Authority), the Service Agreement between Authority and Covanta Montgomery, Inc., the Electricity Sales Agreement for sale of electricity from the RRF, and the intergovernmental agreements with Maryland Environmental Services (MES) to operate the MRF and the Yard Trim Composting Facility. HDR will identify and summarize each of the contracts/agreements including contacting entity, purpose, term, extensions, and other relevant information.

Based on this information, plus any other required information, the HDR Team will develop

a comprehensive description of the existing system which describes the County's current waste management system. This will include at a minimum:

- A review of relevant County planning and background documents
- A review of applicable ordinances, policies, and programs
- Population and demographic statistics
- Baseline waste generation trends, diversion and capture rates, and waste flows (for which information is available)
- Development of a series of waste management system component profiles, including:
 - Community Engagement and Partnerships
 - Education and Enforcement Initiatives
 - Green Procurement Policies
 - Applicable Legislative and Regulatory Policies
 - Reduction and Reuse Initiatives
 - Collections
 - Drop-offs
 - Processing Facilities
 - Disposal Facilities
 - Contractual Obligations
- Prepare a waste management system flow map to graphically describe the movement of materials from generator source through the Region's system
- An overview of the various fees charged to customers, associated revenues, program costs relative to tonnes managed, etc.

- A review of the facilities including volume/tons managed, waste types/source, throughput/remaining capacity
- An assessment of the usage patterns and material managed at the DEP facilities.

The result of this task will be documented in a report, "Current State Assessment".

The above approach has been recommended to provide a detailed and concise overview of the current system, from which future system changes can be evaluated and their potential impact assessed.

DELIVERABLES

- HDR will prepare a Current State Assessment (Task 1) Report and will summarize the results of 1a and 1b as described above.
- HDR will provide a draft Executive Summary and Report to the DEP for review.
- HDR will provide a draft Final Report and Executive Summary following receipt of one set of consolidated comments.

MEETINGS

- HDR will participate in three days of meetings with County personnel including tours of the County's facilities. It is anticipated that a half-day meeting will be required for project initiation activities, including introductions, discussion of invoicing, schedule, data provision, and scope.
- No more than three HDR team members will participate in the meetings and tours.

ASSUMPTIONS

- HDR assumes that the Task 8 Facility Assessments will be conducted concurrently with these tours.
- DEP will make available the most recent version of the SWMP and any associated planning documents or files to HDR for

review and use for documenting the baseline system.

- HDR will issue an RFI to the County for data, which will include the waste sort studies, a listing of all current contracts with a brief description of the scope, the County rate model, as well as other reports generated by the County related to the study of their system.
- HDR will provide a SharePoint (or similar) site to facilitate the exchange of data with the County.
- The DEP will arrange for the meetings/tours and will make key personnel available to HDR.
- The DEP will arrange for access to all County facilities.
- The Report and Executive Summary will be provided in electronic format only. No printing costs are anticipated.

Task 2. Benchmarking and Best Practices

Montgomery County has an outstanding integrated solid waste management system and is considered a leader among solid waste management communities across the country. Nevertheless, there are many other communities doing good work and there are lessons to be learned from their experience. HDR will work with the County to identify five counties/jurisdictions that will be used to benchmark a variety of metrics. Some potential communities to consider include:

- Fairfax County, VA
- Arlington County, VA
- Prince Georges County, MD
- Lancaster County, PA
- Lee County, FL
- Pinellas County, FL
- Hillsborough County, FL
- Toronto, ON
- San Jose, CA
- Cambridge, MA
- Simcoe County, ON

HDR has very good working relationships with each of these communities which will aid in obtaining timely and accurate information. HDR will, at a minimum, benchmark the following metrics from the selected communities:

- Population and demographics
- Per-capita generation
- Recycling or diversion rates
- Waste generation sources
- Waste composition

- Services provided
- Legislative and/or regulatory requirements
- Service delivery costs
- Funding mechanisms and fees

HDR will work with the DEP to identify other items of interest utilized in other communities such as PAYT, trash disincentives, outreach tactics, mandatory diversion ordinances etc. that may inform future tasks in the Plan.

It is understood that the methodology for calculating recycling and diversion rates differ typically from state to state. HDR will calculate the County's diversion rate using the methodologies used in each comparator jurisdiction to provide a true "apples to apples" comparison of diversion rates. HDR will identify the differences between the methodologies utilized and the MRA methodology which may contribute to higher or lower diversion rates. The outcome of this exercise will assist the County in identifying options for consideration in Task 5.

DELIVERABLES

- HDR will prepare a draft Benchmarking and Best Practices (Task 2) Report detailing the results of the benchmarking evaluation.
- HDR will provide a draft Executive Summary and Report to the DEP for review.
- HDR will provide a draft Final Report and Executive Summary following receipt of one set of consolidated comments.

MEETINGS

- HDR will hold one conference call with DEP for up to two hours to discuss the comparator municipalities and metrics for the benchmarking exercise.
- HDR will hold two conference calls with the DEP for up to two hours per call to discuss the draft report and comments related to this task.
- Notes will be distributed by HDR after each call.

ASSUMPTIONS

- HDR will work with the DEP to identify the five comparator municipalities.
- HDR will work with the DEP to identify the metrics for the benchmarking exercise.
- The Report and Executive Summary will be provided in electronic format only. No printing costs are anticipated.

Task 3. Stakeholder, Citizen, and Expert Engagement Plan

To support the development of the Master Plan HDR will develop and implement a comprehensive communication and outreach program that offers opportunities for residents, businesses and stakeholders to help prioritize goals for solid waste management. To communicate, gather input, and inform stakeholder, elected officials, and interested parties about waste management, recycling/diversion, solid waste operations, and the planning process. The public participation strategies will employ a variety of tools from our toolbox. We anticipate reviewing options with the County as part of scope negotiation, but would offer the following ideas as core concepts of our overall approach:

STAKEHOLDER, CITIZEN, AND EXPERT ENGAGEMENT PLAN

The engagement process will be first task initiated. HDR proposes to develop an engagement plan that includes the following key outreach elements:

- **Stakeholder Analysis:** HDR will work with County to identify stakeholders that will be invited to participate in the planning process (non-profits, civic and community associations and groups, residents, schools, advisory groups, County government representatives, representatives from the business community, experts, haulers, recycling companies, etc.). An excel database for email and physical mailing addresses will be developed.
- **Public Awareness Baseline Survey:** public awareness and attitudes on solid waste management, recycling/composting, waste reduction/diversion, programs and costs will be evaluated as the result of an online survey. HDR will develop the survey and interpret the results. A link to the survey will be posted on the County's website and shared through County communication tools.

- **(OPTIONAL) Follow-Up/ Exit Survey:** At the completion of the project HDR will develop a final exit survey to identify changes, understanding and preferences to solid waste management practices. HDR will develop the survey and interpret the results. A link to the survey will be posted on the County's website and shared through County communication tools.
- **Task Force Meeting:** At the initiation of the project, HDR will meet with the Task Force to describe the planning process, schedule, gather data, and to allow early and continued input throughout the planning process. It is assumed only one meeting will occur.
- **Community meeting/poster board sessions:** Focused, public, community meeting/poster board sessions will be scheduled at key milestones during the planning process to give the community and stakeholders added opportunity to provide input on the Plan. The format of the meetings may include storyboard information, presentations or other open-house techniques. These meetings/ poster board sessions will occur during the following milestones:
 - First set of community meeting/poster board sessions – (Meetings #1 and #2 held at different times and locations) will engage the public and introduce plan process, provide background information and solicit information for diversion/recycling strategies. This information will be used to help direct/supplement Task 5.
 - Second set of community meeting/poster board sessions – (Meetings #3 and #4 held at different times and locations) will present more detailed information related to Task 5 and solicit more targeted information on diversion/recycling strategies. This information will be used to help direct/supplement Task 6 and 7.

Information will also be solicited regarding disposing of “what’s left.”

- Third set of community meeting/poster board sessions – (Meeting #5 - one time and location) - will be held to present the final Master Plan.
- (OPTIONAL) An optional fourth community meeting/poster board session (Meeting #6 - one meeting time and location) is included in the fee to gather input on Task 9 (or other Task at end of Master Plan).
- Engagement Reporting: HDR will work with the County to track the increase in site visits to website and social media tools to help measure the effectiveness of the outreach strategies. The Consultant will also track and document the engagement process with stakeholders including comments and meeting attendance.

HDR uses a survey platform to garner feedback and monitor the responses. Parameters for the respondent to enter their zip code information can be included so that the HDR team can monitor out- of-County input. HDR’s web development team can create a custom website with reCAPTCHA software, the same type used for the “I’m not a robot” forms to control bot input. The comment form on the website can also include required fields for respondents to enter their zip code information.

At the end of this process, we will have executed a public participation program that is transparent, solicits input, and encourages participation by all interested parties. The public awareness baseline and public input will help define the goals, values, visions and wishes of the public and the necessary programs, policies and systems to be addressed in the Plan.

DELIVERABLES

- One Draft/ Final Stakeholder Analysis in a Microsoft Excel template.

- One Draft/ Final Survey Public Awareness Baseline Survey and results summary.
- (OPTIONAL) One Draft/ Final Exit Survey and results summary.
- Draft/Final meeting materials for each community meeting/poster board session.
- Assume up to five meetings summaries for all meetings listed below.
- Assume up to twelve (12) engagement reports.

MEETINGS

- One (1) Task Force Meeting
- Five (5) community meeting/poster board sessions.
- One (1) optional community meeting/poster board session.

ASSUMPTIONS

- Two cycles of review is included in the fee on all deliverables.
- The stakeholder analysis will be delivered in a Microsoft Excel template.
- The online surveys will be hosted on Survey Monkey. The survey reports will be generated from the Survey Monkey platform. The County will be responsible for advertising the survey availability.
- HDR will attend one Task Force Meeting. The County will manage meeting logistics and invitations. HDR will prepare the power point presentation for the meeting.
- The County will host a minimum of five community meetings/poster board sessions. Each session will be 2 hours in length. The County will manage logistics and develop a meeting plan for each meeting. It is assumed there

will be three rounds of meetings; concurrent meetings will be held during each phase to reduce the amount of required travel by HDR.

- Where possible the public open house meetings will be scheduled in coordination with project management meetings.
- It is assumed HDR will develop the following materials for each set of meetings (assume up to three rounds of meetings, not including the optional fourth meeting):
 - Five (5) 30x40 Poster Boards
 - One-hundred (100) full color 11x17 handouts
- HDR assumes that three (3) knowledgeable staff will participate in each community meeting/poster board session. The County/Authority will bring four (4) individuals to each meeting.
- The County will manage all public notifications and outreach for the community meeting/poster board sessions.
- HDR will prepare monthly engagement reports for the duration of the project. Assume twelve (12) reports.

Task 4. Develop and Maintain Content to be hosted on the County’s website and assist in the development of branding for the “The Future of Responsible Waste Management in Montgomery County”

WEBSITE CONTENT

The HDR team will develop web-friendly content to be hosted on the County website for monthly updates, but also at key phases in the planning and Master Plan development process. During an initial coordination meeting on website development, the County IT and HDR teams can determine the type of hosted site the County prefers. Website content will include reports, graphics, videos, and pictures, as well as meeting agendas and reports.

HDR will work collaboratively with the County’s IT team through multiple conference calls to deliver an ADA-compliant, plain- language page compatible with the County website complete with interactive and informational components.

SLOGANS/ LOGOS

A key part of the engagement plan, and ultimately of the Master Plan, is the brand and associated slogans and headlines. Branding is not a simply a project logo or a color palette, but the sum of the total of all experiences, impressions and knowledge a person has about an organization and the County’s waste management services.

HDR will work with the County to deliver our three-step branding process, which will incorporate participation from the DEP.

DISCOVERY

HDR will initiate a branding workshop where we conduct exercises that encourage participation and conversation. The information captured during this phase will inform our creative team’s

decisions as they begin developing the graphic mood boards to determine the sentiment that drives potential look and feel of the brand. As insights are analyzed, common themes, words and phrases become known and are gathered, refined and delivered on a “Brand Board.” This board consist of a brand promise, brand values, key issues, target audience, and potential slogans. This board will serve as a guidepost for your brand values and will shape the tone and actions for the next phase of the creative process.

IMAGINATION

Taking what was discovered in the first phase, our design team will capture the visual and verbal tone of the brand through the use of “mood boards.” Guided by the brand board and other insights gained from the discovery phase, these boards will have a unique conceptual direction for the brand defined through the use of a brand narrative, brand position, sample headlines and a visual tone. Once a design direction is chosen and a refinement process is complete, we begin the activation phase. At this stage, HDR will produce three final logos and corresponding slogans; one logo and slogan will be selected by the County.

ACTIVATION

This step is all about applying the brand across the necessary platforms and occurs within a matter of weeks after selection of the logo and slogan. A detailed set of guidelines and branded templates will be created and enforced to ensure cohesion throughout the brand. From flyers and posters to interactive media (e.g. GIFs) these assets will be utilized throughout the duration of the project. Final brand components for review:

- Final logo and brand standards
- Assets including:
 - Master Plan Report Template
 - Word Document Template
 - Microsoft Power Point Template

DELIVERABLES

- Monthly document of web-ready content related to the Master Plan progress and planning effort, including content related to the completion of task reports and major milestones, provided to the County in MS Word format sent via email. Assume twelve months of providing content.
- One draft and final Brand Board.
- Three branding mood boards to frame and focus the creative direction.
- Three (3) concepts for logos/slogans for review by the County and Stakeholders
- FINAL logo/slogan with corresponding branded templates to include word document template, formal tech memo template, and PowerPoint.

MEETINGS

- HDR will participate in ten (10) hours of conference calls with the County IT staff to confirm web compatibility and discuss any ongoing coordination.
- HDR will participate in one (1) in-person 2-hour branding workshop,
- HDR will participate in one (1) 2-hour conference call to discuss logos/slogans with the County.

ASSUMPTIONS

- The County will host and manage the website. HDR will provide content and graphics for each web update for the duration of twelve months.
- The County will select one logo and slogan to be used for the duration of the project.

Task 5. Improvements to the current diversion/recycling system

A key outcome of this Master Plan is the development of methods and ideas to reduce waste and increase diversion and recycling of materials. The County has already taken significant steps in waste reduction, diversion and recycling through its integrated solid waste management program. Nevertheless, as the waste composition studies show, there is significant recoverable materials in the solid waste stream. The road to zero waste and a circular economy will require a clear map with good directions. The goal of this task is to begin to provide that road map and directions.

HDR will work with the County to identify opportunities for diversion and recycling, at a minimum, in the categories listed below. For each specific opportunity, HDR will provide some key considerations, including but not limited to:

- Impacts (on waste reduction, recycling or diversion)
- Implementation costs (high level budgetary costs – capital and operating)
- Requirements for updates to or new ordinances and/ or legislation
- Job creation
- Permitting requirements
- Implementation timelines
- Public acceptance risks
- Environmental benefits (e.g. GHG emission reduction)

HDR recommends holding one or more meetings with key stakeholders to get ideas and input on what type of options should be considered, as well as to get input on what is and isn't working within the County. Note that this outreach event would be discussed with

DEP as part of the overall engagement plan and has not been included in our scope.

HDR would develop an evaluation matrix for the options under consideration to provide a comparison of the benefits, impacts and costs of the options for the key considerations listed above as well as any other criteria identified in discussion with DEP. This will identify the options which may be carried forward for further consideration and presented in Task 6, depending on the key considerations identified. At this stage, HDR would rank each option being considered for its GHG emission reduction potential, on a comparative, high level basis. A more detailed analysis of GHG emissions reduction potential would be undertaken prior to Step 10 for those options being put forward in the draft Master Plan.

In order to estimate potential additional materials that could require management, HDR will use available data to develop a list of businesses in Montgomery County by business classification using NAICS codes and, using available studies (e.g. New York City commercial waste audit) will estimate waste generation and diversion potential from targeted businesses through specific programs.

For all system improvements identified pertaining to collection, project team member MSW Consultants will integrate the new program parameters into the baseline collection model to compare impacts with the current system. The collection options analysis entails compiling the tonnage, collection service requirements (containers, collection vehicles, service points, etc.), and other related components to model the collection system that would be needed for the selected improvements.

The analysis of incremental collection services and costs will be developed from the baseline recycling, refuse and C&D collection models developed in earlier steps. For each new collection service required to implement a new program, MSW Consultants will estimate the number of routes, containers, equipment operator staffing (i.e., employment), trucks

(capital purchases), and associated GHG emissions. To the extent a new collection program would shift a significant fraction of material tonnage from the existing collection services, MSW Consultants will also model the estimated reduction in collection resources in the current system.

HDR will identify a series of options related to the 5Rs – reduce, reuse, recycle, recover, residual and would prioritize the options according to this hierarchy. The outcome of this task will be the identification of options for consideration and a high level evaluation of options that should be carried forward for further discussion and evaluation. The options, at a minimum, would include the following:

FOOD SCRAP COLLECTION AND PROCESSING (BOTH COMPOST AND ANAEROBIC DIGESTION)

There is limited diversion and recycling of food scraps in the County at present, due in part due to fluctuating levels of processing capacity with facilities experiencing operational issues. HDR will review existing food scrap diversion programs to assess their viability for expansion in the County.

The HDR project team will review and assess a variety of collection and funding options including:

- Mandatory diversion of food scraps
 - Co-collected with yard waste
 - Separate collection routes
 - Co-collection with another waste stream
 - Development of food scraps drop-off centers
- Voluntary food scrap diversion program funded by the County
- Voluntary fee-based food scrap diversion program

The HDR project team will also undertake a review of:

- Existing and planned organics processing facilities within the County and in other jurisdictions within a reasonable hauling distance
- Composting and Anaerobic Digestion with composting technologies and potential for technologies to manage the County's organic waste stream
- Feasibility of developing a facility located within the County, either at an existing site (as identified in the Food Waste Strategic Plan), or at an alternative site
- Modifications required to the current system to manage organics (e.g. modifications to the Shady Grove Transfer Station)

ENHANCEMENT OR IMPROVEMENT OF EXISTING INVESTIGATION AND ENFORCEMENT EFFORTS

HDR will examine the current level of enforcement and the existing ordinances/policies in place to support increased diversion. HDR will make recommendations for enhancements or improvements to assist the City in achieving their targets.

INCREASED EDUCATION EFFORTS FOR WASTE REDUCTION, DIVERSION, REUSE AND RECYCLING, AND BUY RECYCLED (TO INCLUDE NEW/ REASSIGNED STAFF)

As part of HDR's review of the County's outreach efforts, HDR will make recommendations on other activities for the County's considerations. HDR will also review the County's procurement policies to identify opportunities options to purchase items with recycled content or other green procurement opportunities.

PAY-AS-YOU-THROW PROGRAMS, RECYCLE BANK AND OTHER INCENTIVE-BASED PROGRAMS (E.G., CONTAINER REDEMPTION PROGRAMS, ETC.)

HDR is currently undertaking a recycling incentive study for a large US city and routinely includes consideration of trash disincentives as options to increase participation in diversion programs as part of our planning studies. This could include provision of a standard size trash container, volume based (PAYT) systems, every other week collection of trash, excess trash fee etc.

SINGLE STREAM, DUAL STREAM, OR MULTI- STREAM RECYCLING (WET/DRY, PAPERS, GLASS, CONTAINERS)

HDR will undertake a review of the County’s existing recycling program, based on available information, to identify the feasibility of changes to the type of source separation requirements.

Changes to the type of recycling program will be dependent on the County’s MRF, lifespan/condition of equipment, contracts, contamination rates etc. Project team member Janine Ralph has conducted a comparative analysis of single stream and dual stream programs and will bring this knowledge to this task to identify feasible options for the County’s consideration. Associated with this task will be an analysis of other considerations such as semi or fully automated collection, cart-based collection, acceptability by the resident, ability to reduce litter, impact on contamination/residual rates, outreach requirements etc. The results of the Materials Recovery

Facility and Paper Processing Facility site visit/assessment will complement this analysis to identify the condition of the facility and feasibility of required modifications.

COMMUNITY RECYCLING CENTERS/COMPOSTING OPERATIONS

The development of a “community composting facility” is a relatively recent phenomenon in organics recycling. The driver behind this

evolution is the notion that, at its core, community- scale composting occurs as close to the sources where they are generated to capture the benefits of both the process and the finished product for the community. In practice, that can take many different shapes, from composting in the backyard to composting operations in or near the community it services, with all or a portion of the finished compost returned back to the community for food production, storm water management, soil remediation and more. Community-scale composting also encompasses collection services that facilitate organics diversion in their community. These operations have been effective in engaging citizens in the organics recycling process.

At present, there are several community composting facilities in the metropolitan Washington D.C. area. In some communities, these “micro” composting facilities are co-located with Community-Supported Agriculture or with community gardens.

There are over 60 farms in the CSA program supported by the Maryland Organic Food & Farming Association, and four (4) are located in Montgomery County. The Maryland-

National Capital Parks and Planning Commission (MNCPPC) operates a community gardening program involving eleven (11) community gardens.

The DEP operates two Neighborhood Mulch Preserves in an effort to decentralize yard trim management located at the Shady Grove Processing Facility and Transfer Station and E.E. Halmos Park in Poolesville. The HDR team will investigate whether these Preserves might be suitable sites for a community composting facility or, possibly, for a food scraps drop-off center.

In this subtask, the HDR team will conduct telephone interviews of the Montgomery County CSA farms (and several in nearby Howard and Prince Georges Counties) to determine their interest in, and capacity for, participating in food scraps diversion efforts. In addition, the team will

meet with representatives from MNCPPC to discuss efforts needed to develop a community composting infrastructure in concert with their other existing or planned programs.

REPAIR CLINICS AND REUSE CENTERS

The first priority in an integrated solid waste management system is waste reduction and reuse. There are many examples of publicly sponsored and/or community based repair and reuse centers across the United States, including:

- Community Forklift (MD)
- The Reuse Center (MD)
- The Loading Dock (MD)
- UpCycle Creative Reuse Center (VA)
- Last Chance Mercantile (CA)
- Habitat for Humanity ReStore (many locations)

HDR will review options for promoting and/or sponsoring repair clinics and reuse centers. This could include reuse areas at drop-off centers, or waste exchanges. Potential partners (e.g. non-profit agencies such as Goodwill) will be identified.

INCREASED CITIZEN DROP-OFF CENTERS/SMALL HAULER DISPOSAL CENTERS

Citizen drop-off centers help reduce litter, promote materials recovery, and provide economical options for residents and small haulers to manage their waste that is not otherwise collected.

However, drop-off centers are often expensive (on a \$ per ton basis) and sometimes difficult to justify. HDR will review options to improve and/or increase citizen drop-off centers. As an example, HDR included a review of the City of Cambridge (MA) recycling center as part of the overall Zero Waste Master Plan to identify improvements and future uses.

ANTI-LITTER/MORE RECYCLING/TRASH CONTAINERS IN PUBLIC PLACES

Public area recycling and trash collection is one of the more difficult challenges facing governmental entities. The goals are generally simple: provide receptacles to prevent litter and encourage segregation of recyclables. In practice, however, public compliance with the goals are difficult and recyclables end up in the waste bins and recyclables become contaminated with refuse. Proper signage, container design and location,

and enhanced community education can help improve waste collection, reduce litter, and improve recycling. HDR will evaluate the public area waste and recycling challenges facing the County and will provide options for improvement.

BANS ON ADDITIONAL MATERIALS

Some communities across the country are developing bans on difficult to manage or recycle materials such as polystyrene food and beverage containers, single-use plastic bags and plastic drinking straws. Montgomery County has already enacted a ban on polystyrene food and beverage containers and the City of Baltimore is considering the same. Bans on single-use plastic bags and plastic drinking straws are also being considered or enacted in some communities. Some states are enacting landfill disposal bans on certain recyclables such as cans and bottles. Project team member Laura Kasa has been advising communities in California and New York as they consider material bans. She will review current options for material bans, which could include differential tipping fees as an intermediary step, and provide guidance on expected effectiveness and implementation challenges.

LEAD EFFORTS FOR STATE-WIDE LEGISLATION FOR EXTENDED PRODUCER RESPONSIBILITY FOR RECYCLING ITEMS SUCH AS MATTRESSES, ELECTRONICS, CARPETING, PAINT, ETC.

Statewide legislation for Extended Producer Responsibility (EPR) can be especially valuable in helping communities manage difficult materials such as mattresses, electronics, fluorescent bulbs, carpeting, paint, batteries. Some EPR legislation seeks to cover post-consumer packaging disposal. The State of Maryland has looked into EPR but has not seen legislation enacted. HDR will review how different states have tackled EPR, including New York, Florida, Texas and California. A list of Best Practices will be developed for each of the hard-to-manage materials that can guide the County in advancing state-wide legislation. HDR will bring experience from Canada where EPR programs have been in place for many years for a variety of materials.

COUNTY PROGRAMS TO SUPPORT PRODUCT DESIGN/REDESIGN AND MATERIAL MARKET DEVELOPMENT EFFORTS TO SUPPORT SUSTAINABLE MATERIALS MANAGEMENT

EPR legislation will often compel industries to redesign materials in support of sustainable material management. However, in the absence of such programs, the County could work with local business, industry and institutions to promote greater sustainable material management product design and market development. The County could use its business awards program to specifically recognize companies or institutions (such as technical schools, colleges and universities) that design for sustainable materials management or develop new markets for materials. Other communities that have taken similar measures will be identified. HDR will review different options for the County to consider to promote innovation in sustainable material management. HDR recently participated in a Waste Hackathon in New York City where a variety of ideas about

sustainable materials management were presented.

SATELLITE RESOURCE RECOVERY PARKS

Resource Recovery Parks, or Eco Parks, provide for a symbiotic relationship between producers and users of materials and energy. One business' waste is another business' raw materials. Energy produced by a process can support the energy demands of another. Co-locating these businesses helps create efficient and effective opportunities for materials and energy exchange.

Phoenix, AZ, has been working on such as park through its Reimagine Phoenix initiative. Lancaster County, PA, has partnered with businesses including an ice cream maker and a soybean processor to supply energy from its waste-to-energy and alternative energy operations. Kent County, MI, is also in the process of developing its own resource recovery park, focusing on a zero waste to landfill approach. HDR would bring our experience to the table regarding these types of initiatives to work with the County to assess the feasibility of establishing such a facility.

EXPANSION OR MODIFICATION OF COUNTY COLLECTION AREAS/METHODOLOGY (E.G., COUNTY-PROVIDED TRASH COLLECTION IN SUBDISTRICT B, FULLY- OR SEMI-AUTOMATED COLLECTION, ETC.)

There are numerous options for evolving the provision of residential and commercial collection within the County. Within the residential collection system, the County may wish to investigate changes to the materials collected at curbside, with one example being a switch to source-separated organics collection that adds food waste and compostable papers to the yard waste collection stream. Such a change might entail a reduction in collection frequency for regular refuse collection to every-other-week. To implement such a change, it may also be necessary to convert the entire County to exclusive refuse collection. The MSW

Consultants collection model, developed to reflect the County's collection system baseline in Task 1, is well suited to estimating the operational and financial impacts to the County's collection system of such changes. The model may also be used to evaluate (a) different collection technologies (i.e., going to fully automated collection), (b) implementing a PAYT program, (c) combining service districts to achieve better economies of scale, or virtually any other change to the residential collection system.

Multiple haulers currently provide commercial container service. The County may wish to investigate new requirements for commercial recycling, which would require a shift of container yardage from refuse to recyclable materials. Although current real-world examples suggest there are many challenges, the County may wish to investigate exclusive commercial collection as a means to continue increasing recycling from this sector.

Although it is beyond the scope of this plan to map out the full details associated with converting to exclusive commercial collection zones, it would be possible to estimate the likely reduction in truck traffic and the commensurate impacts on air emissions and pavement surfaces.

LEGISLATIVE OR REGULATORY CHANGES (COUNTY LEVEL AND STATE LEVEL) TO INCREASE DIVERSION/RECYCLING

Even though Maryland's 2015 Zero Waste Plan was repealed, the State has identified a number of possible initiatives to increase diversion and recycling in the state. Some of these initiatives include: improving permitting of recycling and anaerobic digestion facilities, implementing EPR for mattresses and paint, and encouraging PAYT programs. Other states have considered or adopted legislation or regulations requiring commercial traditional recycling as well as organics recycling, collecting fees and providing funds to support diversion and recycling, and banning the disposal of recyclables. HDR will

work with the County to identify possible legislative and regulatory changes that have worked in other communities to increase diversion and recycling.

ADDITIONAL PROGRAMS FOR TEXTILES AND FILM PLASTICS

Textiles and film plastics offer options for additional reuse and recovery as markets exist for these materials if they can be collected cleanly and efficiently. Companies like Simple

Recycling are offering communities in the US curbside collection of clean clothing, household textiles, shoes, and small household items. Anne Arundel County began a textile recycling program in 2016. Many organizations will participate in drop boxes for clothing and textiles. Film plastic recycling may be getting a boost in recovery options with the Wrap Recycling Action Program (WRAP) sponsored by Flexible Film Recycling Group of the American Chemistry Council. HDR will look at these programs and others to outline options for additional recovery of textiles and film plastics.

THE DEVELOPMENT OF AN ONGOING RESEARCH PROGRAM TO ACTIVELY REVIEW AND PLAN FOR THE FURTHER REDUCTION OF "WHAT'S LEFT"

Even with advances in diversion and recycling in the County, there will be materials that will likely require proper handling and disposal. In developing the waste projections, HDR will identify "What's Left" under at least three scenarios. It is expected that "What's Left" is what remains when there are limited or no markets for recycling. Mixed rigid plastics is one example.

Additionally, diversion and recycling rely on human participation and good practices, and it is often difficult to get people to "do the right thing". Market development and continued education (and possible enforcement) will need to be considered in the management of "What's Left". HDR will work with the County to develop a proposed process for researching and

evaluating options for the management of “What’s Left”.

We anticipate there may be several areas where future diversion options may become available at a later date and that we will develop up to three scenarios for further research. We would categorize these scenarios according to the level of effort required to promote diversion and/or recovery of remaining materials. Scenarios would include, Status Quo (no new programs or facilities, moderate (some new programs and/or facilities) and aggressive (many new programs and/or facilities).

DELIVERABLES

- HDR will prepare a draft Proposed Improvements to the System (Task 5) Report detailing the results of the options identification and high level evaluation.
- HDR will provide a draft Executive Summary and Report to the DEP for review.
- HDR will provide a draft Final Report and Executive Summary following receipt of one set of consolidated comments.

MEETINGS

- HDR will hold two conference calls with the DEP for up to two hours per call to discuss the draft report and comments related to this task. Notes will be distributed by HDR after each call.

ASSUMPTIONS

- The Report and Executive Summary will be provided in electronic format only. No printing costs are anticipated.
- High level cost and GHG emission estimates will be developed at this stage. More detailed estimates will be developed in future steps.

Task 6. Meet with DEP to review results and findings of previous tasks

After the completion of Tasks 1, 2 and 5, HDR will summarize the information from the tasks into a presentation for DEP. The goal of the presentation will be to ensure DEP can understand the work that was done and provide feedback on options for waste diversion and recycling that should be carried forward for public consultation. We propose using the draft presentation meeting as a workshop to work through the options and solicit input on which options should be carried forward. The outcome of this meeting would assist with narrowing down the options that would be brought forward for public review and comment as part of Task 7.

DELIVERABLES

- HDR will prepare a presentation summarizing the work conducted in Tasks 1, 2 and 5.
- A draft presentation will be provided to the DEP in electronic format (MS PowerPoint).
- HDR will finalize the presentation and will provide it to the Authority/County in electronic format (MS PowerPoint).

MEETINGS

- In-person meeting to present the draft presentation to the DEP. Up to two HDR staff will attend the 3 hour meeting.
- In-person meeting to present the final presentation to the DEP. Up to two HDR staff will attend the 3 hour meeting.

ASSUMPTIONS

- The presentation will be provided in electronic format only. No printing costs are anticipated.
- Meetings will be a maximum of three (3) hours with a maximum of three (3) HDR team members at each presentation.

Task 7. Prepare a planning document suitable for public review

Based on the outcome of the previous tasks and considering feedback received, which may include new ideas, HDR will develop a recommended hierarchy of programs for the County to pursue including estimated costs, projected outcomes, and potential funding sources (including State, Federal, and grant funding). The funding sources discussion will include a discussion of potential revenue sources other than projected recyclables profits and offsets from disposal avoidance. It is anticipated that the planning document may be presented to the public or other stakeholders to solicit input on the proposed programs.

Considering the feedback received from DEP, HDR will develop a planning document suitable for public review. This planning document will be used to solicit feedback on the options being considered for the Master Plan. The planning document will be provided to the DEP for review and comment.

Following revisions to the public planning document, feedback will be solicited from the public and other stakeholders. The public planning document will be available for review and will be presented to the public and other stakeholders in a clear and easy to understand manner using graphics as appropriate to help communicate the results.

Depending on the components of the public engagement plan developed as part of Task 3, focus groups could be held at this point to get public feedback on the options being considered for the Master Plan. Similarly, another point of consultation could be held with those stakeholders not engaged in the previous step to get input on the Master Plan.

DELIVERABLES

- HDR will prepare a draft public planning document which will summarize the work

completed to-date and present the options being considered for the Master Plan

- HDR will provide final public planning document following receipt of one set of consolidated comments.
- HDR will develop content to solicit feedback from the public and other stakeholders which would include graphics and simplified text suitable for posting on the County's website and other stakeholder engagement events (to be determined as part of Task 3).

MEETINGS

- HDR will hold two 2 hour conference calls with up to 3 HDR team attendees to review comments on the two rounds of the public planning document, as requested.

ASSUMPTIONS

- Holding focus groups, round tables or meetings with stakeholders would be discussed with DEP during the development of the engagement plan and is not part of the HDR budget.
- HDR will provide electronic copies of the public planning document and assumes no printed copies will be required.

Task 8. Review of existing Processing Facilities

The HDR Team has a long history as the owner's engineer at the County's four existing waste processing facilities, including the Shady Grove Transfer Station, Materials Recovery Facility and Paper Processing Facility ("MRF"), the Resource Recovery Facility ("MCRRF"), and the Composting Facility. HDR's knowledge of the County's processing facilities combined with our unequaled experience in performing similar facility assessments will give the County a reliable and accurate understanding of their future infrastructure needs. HDR's proven approach will assist the County in maintaining their waste processing facilities in an acceptable condition and allows for a safe and efficient operation for years to come.

HDR's tested approach to performing Processing Facility assessments will begin with requesting and compiling operation and maintenance data for each of the facilities prior to performing the actual inspections. HDR's comprehensive and in-depth knowledge of the current condition of the MCRRF, based on our current Operations and Monitoring oversight of this facility, will allow us to perform this assessment without an additional site tour or inspection (a cost savings to the County). HDR will instead focus our inspections on the County's other Processing Facilities, including the MRF, Transfer Station and Composting Facilities. As part of these inspections, HDR will also conduct interviews of each facility's operations and maintenance personnel. Our teaming partner, Coker Composting and Consulting, will perform the inspection of the County's Composting Facility and associated yard trim and grinding facilities at the Transfer Station.

The information and observations obtained from the site inspections will be compiled and used by the HDR Team to develop probable costs (+/- 20%) for the recommended repairs and replacements at each Processing Facility that will be required through 2040.. Furthermore,

HDR will utilize our recent and relevant experience to identify best practices and other recommended changes in programs, including the current MCRRF Service Agreement that could help the County realize cost savings in the future. The findings from this step will also be used in conjunction with the work in Task 5 to assess the feasibility of options being considered (e.g. single stream recycling). The findings of our assessment will be wrapped up in a clear and concise final report.

The HDR Team will perform the following activities:

- Prepare a Request for Information ("RFI") of pertinent operations and maintenance data for each Processing Facility that will be provided to the County and their third party facility operators.
- Review, compile and trend the data and information received as a result of the RFI under Task A.
- Up to two (2) HDR representatives will perform inspections of the Processing Facilities.
- Prepare a list of repair and replacement needs for each facility, as well as identify recommendations for operations and maintenance improvements and best practices in order to operate the Processing Facilities through 2025, 2030, 2035, 2040.
- Prepare an estimate of probable costs for the recommended repair/replacement items.
- Based on our recent experience with similar WTE contract negotiations, we will review the current Service Agreement for the MCRRF and identify recommended modifications and improvements that may provide potential enhanced revenues or cost savings for the County.

- Prepare a clear and concise Summary Report that summarizes the observations and information developed under this Task.

DELIVERABLES

- One RFI for each of the Processing Facilities will be delivered to the County via email.
- A DRAFT report and executive summary provided to the County along with any applicable costing sheets in Excel
- A DRAFT FINAL report and executive summary provided to the County along with any applicable costing sheets in Excel
- A FINAL report and executive summary provided to the County in MS Word and PDF format

MEETINGS

- Up to two (2) HDR representatives will spend up to two (3) days performing inspections of the Processing Facilities.
- Up to two (2) HDR representatives will participate in up to two (2) 2-hour conference calls with the County/Authority to discuss the DRAFT and DRAFT FINAL reports.

ASSUMPTIONS

- HDR assumes that the Task 1 activities will be conducted concurrently
- Due to HDR's current role as the County's consultant at the MCRRF we do not anticipate the need for an additional inspection of this facility.

Task 9. Develop options for collection and disposal of “What’s Left”

To the extent the “what’s left” analysis identifies the need to collect and/or transport materials to a new location, project team members MSW Consultants will project the collection system requirements for the new service using the County- wide collection model developed in prior tasks. For each new collection service required to implement a new program, MSW Consultants will estimate the number of routes, containers, equipment operator staffing (i.e., employment), trucks (capital purchases), and associated GHG emissions. Should a new collection program shift a significant fraction of material tonnage from the existing collection services, MSW Consultants will also model the estimated reduction in collection resources in the current system. Probable cost estimates (+/- 20%) will be developed.

The project team will undertake an assessment of the following scenarios:

CONTINUED USE OF THE MCRRF

HDR has comprehensive in depth knowledge of the current condition of the MCRRF based on its current Operations and Monitoring oversight. HDR has been working with the Authority and County to oversee the implementation of

Covanta’s Recovery Plan, which include capital refurbishment and operational improvement projects. HDR will be able to draw on this knowledge to complete this subtask without the need for additional site visits and with minimal additional documentation review.

HDR will perform the following activities under this subtask:

- Develop and submit a RFI to the County for a list of documents that should be made available for review.
- Assess the feasibility of the MCRRF to remain in operation through 2040.

- Develop a priority list of capital improvements that are required to maintain facility operation and performance through 2040;
- Develop a conceptual estimate of probable capital costs for the priority list of capital improvement projects
- Note that the corollary to this option is the discontinued use of the MCRRF, which is the assumption as part of the assessment of the following options.

LONG-HAUL TRANSFER OPTIONS FOR DISPOSAL OUT-OF-COUNTY USING THE EXISTING TRANSFER STATION SITE

Depending on the determinations made in other sections of this study, the County may want to contract waste hauling to an out- of-County disposal facility.

HDR will perform the following activities under this subtask:

- Develop a search criteria to qualify which out-of-County disposal facilities meet the needs of the County;
- Locate qualifying disposal facilities which fall within a reasonable search radius from the existing Transfer Station; and,
- Identify the top three (3) options for out-of-County disposal facilities and include an estimate for transportation costs for different modes of transportation and disposal costs.

HDR Team member MSW Consultants maintains a long-haul transfer model for calculating the financial and environmental impacts of long haul for various wastes and recyclables. This model tabulates the cab and trailer capital and operating costs based on fuel type and fuel usage, drive distances, payload, and back-haul availability. This model will be used to compare transportation costs between various disposal and processing facilities that may receive Montgomery County materials.

DEVELOPMENT OF A NEW WASTE/RECYCLING FACILITY AT ANOTHER LOCATION WITHIN THE COUNTY”

The County may want to pursue the development of a new waste processing or recycling facility situated in another location within the County.

HDR will perform the following activities under this subtask:

- Discuss with the County the type of facility (MRF, MWPF, compost, WTE, etc.) that may want to be developed in a new location;
- Develop a set of criteria (access to rail/highway, utility connections, site footprint, floodplain issues, etc.) to use to identify potential sites;
- Identify two (2) potential locations within the County to situate this new facility;
- Provide high level estimate of probable costs for siting, permitting, design, and construction of this new facility; and,
- Develop a high level Basis of Design for this potential facility.

OTHER PROCESSING TECHNOLOGIES SUCH AS MIXED WASTE PROCESSING, SOLID RECOVERED FUEL PRODUCTION, GASIFICATION, ETC.

For the organics fraction of solid wastes (mostly food and yard trim) not otherwise planned for recycling by composting and/ or anaerobic digestion as a result of this Master Plan, this task will evaluate alternative technologies that have been proven at a commercial scale, such as animal feed extrusion (example facility- Sustainable Alternative Feed Enterprise, Santa Clara, CA.)

The evaluation of other processing technologies will include high-level cost estimates and implementation timeline estimates, siting requirements, environmental considerations,

and environmental benefits compared to landfilling. As these types of technologies are usually privately owned and developed it is likely that proprietary considerations may make some information unavailable.

This evaluation will include preliminary information on potential markets for the products (such as food-based pelleted animal feed).

MODIFICATION TO THE EXISTING TRANSFER STATION SITE TO ACCOUNT FOR THE OPTIONS RECOMMENDED IN TASK 8

The County may wish to seek improvements to the current standard operating practices, as well as look for opportunities to implement additional collection/drop-off and recycling programs at the existing Transfer Station site. HDR will draw on our inspection of the existing site and our knowledge of the County’s other Processing Facilities, recycling systems and diversion goals to perform this subtask.

HDR will perform the following activities under this subtask:

- Identify improvements to the current standard operating procedures and recommend additional best practices (e.g. identify additional screening processes to improve recycling or reduce risks of unaccepted materials to other County facilities, such as the MCRRF);
- Develop a priority list of improvements and the associated capital or implementation costs for items identified above;
- Identify the opportunities for collecting additional recycling materials at the Transfer Station site, such as adding a public drop-off or collection facilities or additional equipment; and
- Provide high level estimates of probable costs for additional collection and/or recycling programs at the existing Transfer Station site.

The outcome of this task will be to assess the feasibility of continued use of the County's facilities, as well as the development of transfer and processing options to manage "What's left". HDR will develop budgetary costs for continued operation of County facilities, including improvements or refurbishments required to manage the options being considered as well as for other processing technologies. HDR will prepare recommendations based for options based on the 20-year NPV as well as lifecycle GHG emissions. The HDR project team will utilize the WARM 2016 model to model the five alternatives listed above. WARM calculates GHG emissions for baseline and alternative waste management practices, including source reduction, recycling, combustion, composting, anaerobic digestion, and landfilling. The model calculates emissions

in metric tons of carbon dioxide equivalent (MTCO₂E) and metric tons of carbon equivalent (MTCE) across a wide range of material types commonly found in municipal solid waste (MSW). HDR will develop a timeline for implementation for the infrastructure modifications and any siting requirements.

Each option being considered will undergo an assessment of the environmental benefits compared to landfill. The project team will also undertake a review of the collection system modifications required for the options under consideration using the collection model developed in previous steps.

DELIVERABLES

- One RFI for documentation necessary to review for the continuing use of the MCRRF will be delivered to the County via email.
- A DRAFT report and executive summary provided to the DEP along with any applicable costing sheets in Excel.
- A DRAFT FINAL report and executive summary provided to the DEP along with any applicable costing sheets in Excel.

- A FINAL report and executive summary provided to the DEP in MS Word and PDF format

MEETINGS

- Up to two (2) HDR representatives will participate in up to two (2) 2-hour conference calls with the DEP to discuss the DRAFT and DRAFT FINAL reports.

ASSUMPTIONS

- Estimates of probable cost will be +/-20%

Task 10. Final Master Plan

Following the completion of all work under Tasks 1 to 9 as noted above, HDR would combine the outcome of Task 7, being the public planning document, Task 9, being the options for collection and disposal of “What’s left”, to prepare a final draft Master Plan.

An executive summary would be developed, to provide a visual overview of the recommendations in the CIWMS update, and a plain language reference to the overall report. The final report and appendices will be supplied electronically in both Microsoft Word and PDF formats.

In general, the table of contents of the draft Final Master Plan would be as follows:

- a) Executive Summary
- b) Current State Assessment
- c) Updated Waste Quantities and Projections
- d) Recommendations for Improvements to the Current Diversion/Recycling System
- e) Recommendations for Existing Processing Facilities
- f) Recommendations for Collection and Disposal of “What’s Left”
- g) Implementation Plans including Communication and Engagement
- h) Recommended Funding Approaches and Timelines
- i) Sample Legislative Language for Recommended Changes in Legislation

Appendix A: Waste Sort Review

Appendix B: Review of Current Operations and Programs

Appendix C: Benchmarking and Best Practices Review

Appendix D: Conceptual drawings of facilities

HDR will develop a draft Table of Contents for the Draft Master Plan for review by DEP and make any revisions necessary before commencing work on the document. HDR will present the Draft Master Plan to the DEP for review and comment. It is anticipated that additional feedback would be sought from the public and other stakeholders at this stage, which will be part of the discussion about the public engagement plan.

HDR will revise the Draft Master Plan based on input from the DEP and consultation with the public and other stakeholders. A Draft Final Master Plan will be presented to DEP for review and any edits made following receipt of a set of consolidated comments from DEP.

DELIVERABLES

- A DRAFT Master Plan report and draft executive summary provided to the DEP along with any applicable costing sheets in Excel
- A DRAFT FINAL Master Plan and executive summary provided to the DEP along with any applicable costing sheets in Excel
- A FINAL report and executive summary provided to the DEP in MS Word and PDF format

MEETINGS

- Up to two (2) HDR representatives will participate in up to two (2) 2-hour conference calls with the DEP to discuss the DRAFT and DRAFT FINAL reports.

ASSUMPTIONS

- HDR will provide electronic copies of all documents.
- The timing and type of Public and Stakeholder outreach will be discussed and confirmed with DEP as part of Task 3 and has not been included in our budget.

Task 11. Presentation of the Plan

HDR will develop a high level version of the Master Plan for presentation to the Executive, County Council and the citizens of Montgomery County. For the purposes of this proposal, we have assumed this will consist of a power point presentation with highlights of the programs planned in the Master Plan.

HDR has developed interactive PDFs for other clients to present information in a more engaging and visual manner and could discuss development of such a product with DEP during the discussions about the Stakeholder, Citizen and Expert Engagement Plan. The interactive PDF could be posted on the project website.

DELIVERABLES

- A DRAFT MS PowerPoint presentation
- A DRAFT FINAL MS PowerPoint presentation
- A FINAL MS PowerPoint presentation

MEETINGS

- Up to two (2) HDR representatives will participate in up to two (2) 2-hour conference calls with the DEP to discuss the DRAFT and DRAFT FINAL presentations.
- Up to two (2) HDR representatives will attend a half- day meeting to review and practice the presentation in advance of the presentation of the Final Master Plan to the County Executive.
- Up to two (2) HDR representatives will attend the presentation of the Final Master Plan to the County Executive for up to two (2) hours.
- Up to two (2) HDR representatives will attend the presentation of the Final Master Plan to the County Council for up to two (2) hours.

Task 12. Project Management

A careful project management and implementation plan supported by experience in management and execution of similar type of projects is essential to a successful outcome for our projects. The HDR team and Christine Roarke, the nominated Project Manager, recognize the challenges ahead and the importance of implementing a strong project management approach.

In order to ensure the successful delivery of this project, the HDR team would offer:

- First and foremost, a designated Project Manager that will approach the project aggressively and with due consideration to both program quality and implementation schedule;
- Team members familiar with waste management in the County and with the right combination of technical, planning and management experience with the ability to draw on a team of professionals (HDR team, or third party resources) offering additional resources, QA/QC, specialist input,
- etc. that will be required from time-to-time throughout the project duration; and,
- A Manager/Team that will provide all of the PM functions required by the DEP including project task co- ordination, status monitoring, financial management, and communications.

As project managers, HDR will provide and coordinate all quality assurance and quality control as required to ensure the successful delivery of the project and the quality of the work completed. This coordination will include:

- Monitoring of Project team performance, task budgets, and schedules for deliverables;

- Monitoring of staff and sub consultant performance, task budgets, and schedules for deliverables;
- Timely and consistent updates to the website;
- Preparation of timely invoices and supporting information; and,
- Deliverables are completed to the DEP's satisfaction.

This monitoring process will be supported through the use of MS Project and HDR internal accounting software.

HDR will prepare a project schedule in advance of the project initiation meeting, and will update the schedule to reflect feedback from the DEP. This schedule will be updated and submitted on a monthly basis.

PROGRESS MEETINGS

- HDR will attend and participate in monthly in-person progress meetings with the Authority/County. The project manager attend the 2 hour meetings in person. To the extent possible, we assume these meetings are concurrent with other in person project meetings.
- HDR will prepare an agenda in advance of each meeting and will prepare and distribute summary meeting minutes within three working days of each meeting.

PROGRESS REPORTS

HDR will prepare and submit monthly progress reports by the fourteenth of each month. The Progress Report will include:

- Actions that have been taken in fulfilling requirements of the scope.
- Deliverables that have been submitted to Authority/County.
- Actions scheduled for the next six (6) weeks.
- Information regarding percentage completion, unresolved delays encountered

or anticipated that may affect the future schedule and a description of efforts made to mitigate those delays or anticipated delays. “

- A progress schedule for upcoming and future activities with consideration of review time by the DEP.

WEBSITE CONTENT MANAGEMENT

HDR's Project Manager will work with our Strategic Communications team to develop content for the Master Plan Website. All content will be sent to the DEP for review and approval prior to posting. Content may consist of Final Reports or Documents, Draft Reports or Documents issued for public comment, information about consultation events or public meetings (meeting dates and project materials), and information articles or reports as background for the Master Plan. HDR will work with the County, and its IT department to identify a schedule for providing and uploading content on a monthly basis, at minimum. Costs for this activity have been included as part of Task 4.

ASSUMPTIONS

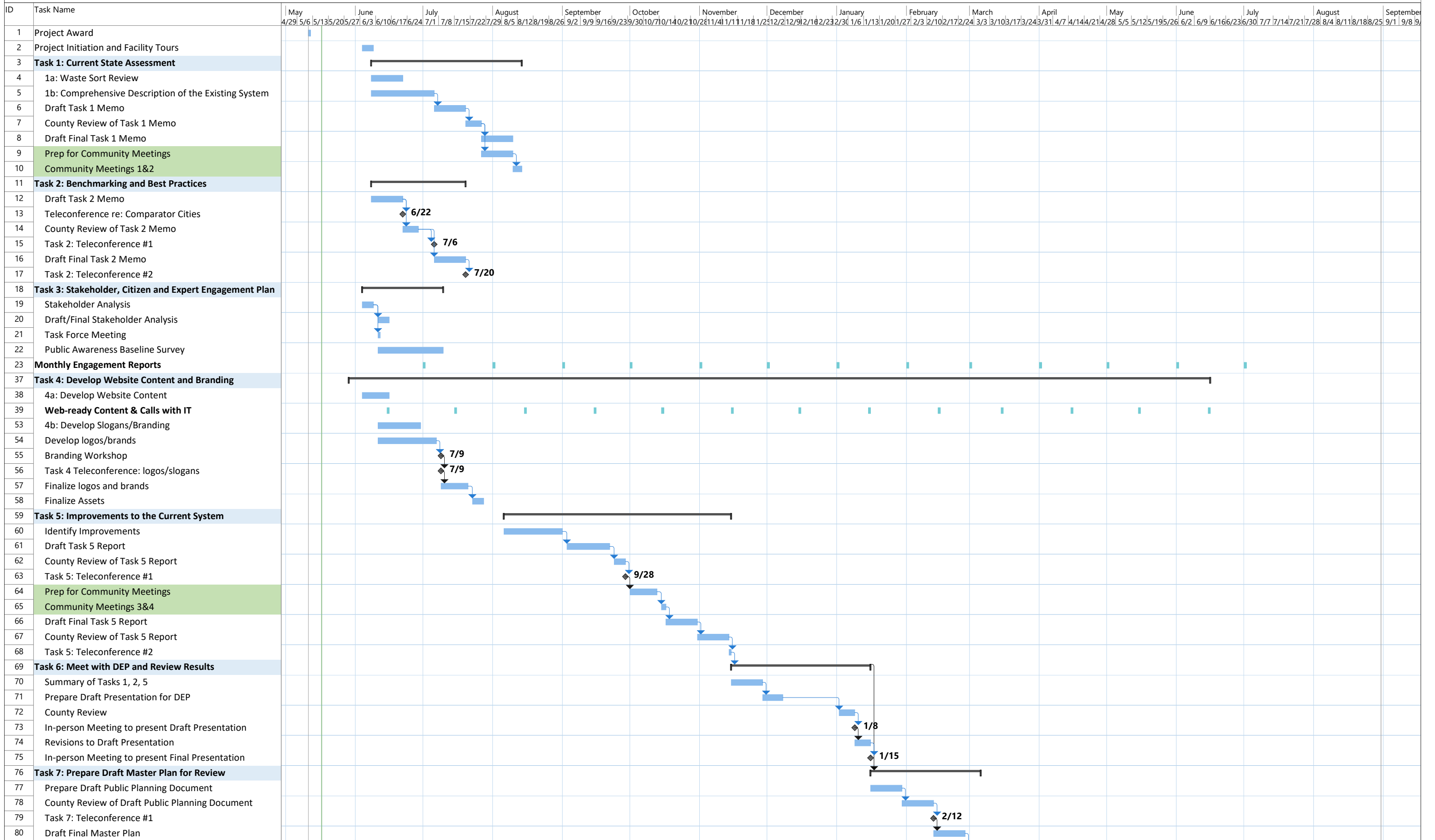
- HDR will be providing content to the DEP for review and approval prior to posting.
- The County will develop and maintain the Master Plan Website.

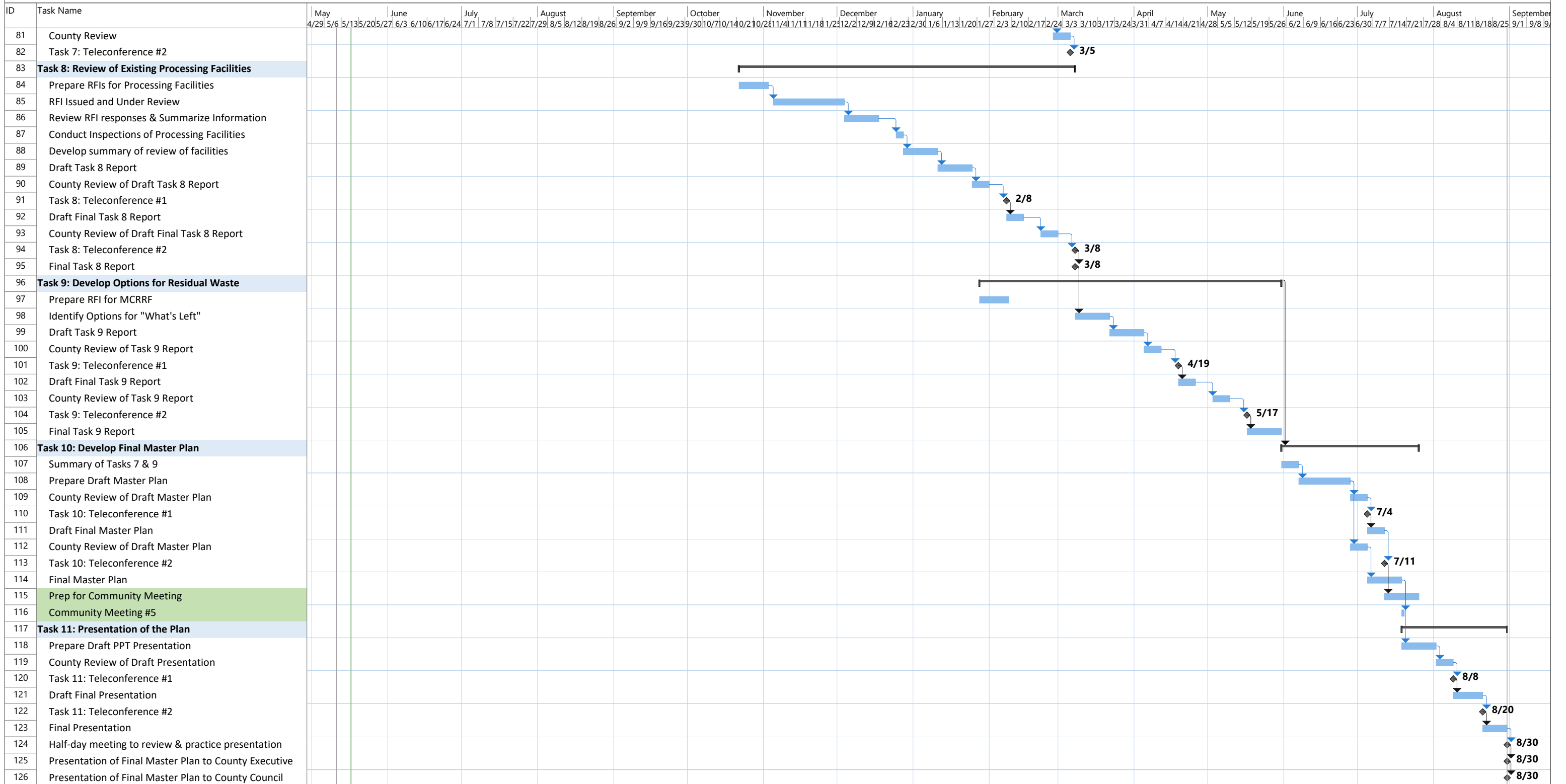
Schedule

HDR has put together a schedule for the work based on a later start date for the project. It is anticipated that the project would be completed in August 2019. The following table presents a high level summary of the deliverables and timing of this project.

Summary of Deliverables

| Task No. | Deliverable Description | Timing |
|---|---|--|
| Task 1. Current State Assessment | Project Initiation Meeting and Facility Tours | June '18 |
| | Draft and Final Executive Summary and Current State Assessment (Task 1) Report | June – July 18 |
| | Community Meetings 1&2 | August '18 |
| Task 2. Benchmarking and Best Practices | Draft and Final Executive Summary and Benchmarking and Best Practices (Task 2) Report | June – July '18 |
| Task 3. Stakeholder, Citizen, and Expert Engagement Plan | Finalize Engagement Plan Stakeholder Analysis Task Force Meeting | June '18 |
| | Draft/ Final Survey Public Awareness Baseline Survey | June - July '18 |
| | Engagement Reports | Monthly |
| Task 4. Website Content & Branding | Develop Website Content | June '18 |
| | Branding Exercise | June- July '18 |
| | Develop Website Content | Monthly |
| Task 5. Improvements to the current diversion/recycling system | Draft and Final Executive Summary and Benchmarking and Best Practices (Task 2) Report | August - November '18 |
| | Community Meetings 3&4 | October '18 |
| Task 6. Meet with DEP | Draft Presentation | November - December '18 |
| | Present Draft Presentation to DEP | January '19 |
| | Present Final Presentation to DEP | January '19 |
| Task 7. Prepare a planning document | Draft and Final Planning Document | January - March '19 |
| Task 8. Review of existing Processing Facilities | RFIs | October - December '18 |
| | Facility Inspections | December '18 (or could be done as part of project initiation in June/July) |
| | Draft and Final Executive Summary and Report on Processing Facilities | January - February '19 |
| Task 9. What's Left | Draft and Final Executive Summary and Report Options for "What's Left" | March - May '19 |
| Task 10. Final Master Plan | Draft and Final Executive Summary and Master Plan | June - July '19 |
| | Community Meeting #5 | July '19 |
| Task 11. Presentation of the Plan | Draft and Final Presentation | July - August '19 |







8115 Maple Lawn Blvd
Suite 360
Fulton, MD 20759
301.289.7203

hdrinc.com

We practice increased use of sustainable materials and reduction of material use.

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