# Sustainable Business Park Master Plan

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Sustainable Business Park Master Plan

APPENDIX A

Monthly team meeting notes combined, Kick-off through July 2018
Meeting Notes: All Monthly Team Calls, including Kickoff

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Meeting Notes: Internal Stakeholders (Kickoff)
Tuesday, September 12, 2017

Time: 9am-noon, Location: Kent County DPW, 1500 Scribner Ave NW, Grand Rapids, MI 49504

GBB: Steve Simmons, Harvey Gershman, Jennifer Porter
Kent County: Dar Baas, Kristen Wieland, Bill Stough, Molly Sherwood, Dan Rose, Steve Faber
Byrum & Fisk: Steve Faber

Agenda:
1 – Introductions
2 – Review of Approach & Team
3 – 10-minute drill to envision the Resource Park
4 – Fast forward: Master Plan Report is complete!
5 - Short, medium, long term goals summary

NOTES:

- Dar noted that reducing the flow to the landfill is a huge paradigm shift. The South Kent Landfill has capacity through 2030. Resource Park would offset need to build new landfill cells on the approximately 200 acres planned for the Resource Park.
• Dar noted desire to respect staff holiday demands Dec 15 - Jan 15.
• Dar noted conversation with Rick Chapla regarding State Senate Appropriations Chair Senator Hildebrand and a 2019 earmark for $2M for the Resource Park.
  o ACTION: FTC&H will draft an infrastructure plan for the Resource park to submit by 10/21; include distance to natural gas pipeline and in Master Plan/existing conditions
• Harvey noted there are 750,000 tons per year in the Kent County system (300,000 tons leave the county to private landfills); an estimated $150M considering collection, processing and disposal.
• Steve Simmons noted waste composition data show high C&D, OCC, LDPE and Organics.
• Dar noted Shana Schroll should be chair of Stakeholder Review Committee (SRC)
  o ACTION: Byrum & Fisk add Schroll to contact list for inviting to meetings; manage list and add others; finalize categories of attendees, adding real estate
  o ACTION: Dar ask Schroll to chair SRC
• Dar has note used the appointed solid waste planning committee and doesn’t see a role for this until 2019 to vote on the Resource Park before going to County Commissioners.
• Should the RFI be from GBB or DPW
  o ACTION: Dar decide on procurement tool (Calvin Brinks, Purchasing)
• Need to finalize PR strategy to be internal, local and national
  o ACTION: Byrum & Fisk develop for project team to comment; consider a combined DPW staff meeting for internal education
• Dar noted desire for Ash processing RFI
  o ACTION: GBB follow-up on plan forward; make the business case; get case studies from Ecomaine and Lancaster
• Create document sharing and email block
  o ACTION: GBB create both Sharefile and Outlook group for emailing
• Overarching message that Resource Park will improve the Great Lakes and create jobs.
• Some system ideas presented in previous GBB work
  o ACTION: GBB review for County Capabilities section of report

RESULTS OF 10-MINUTE DRILL

TOP VOTES (by descending votes—everyone had 5 votes after all ideas were shared; not more than two votes allowed per item)

1. Focus on tons (5)
   a. Organics processing; capitalize on Beer City USA
   b. C&D processing
2. Sustainable DPW (4)
   a. Consider shifting roles and shifting revenue
   b. Staffing considerations paramount
3. Energy generation for use at park and in vicinity “microgrid” plus energy storage (4)
4. Focus on commercialized technology (4)
5. Attract highest environmental standards for tenant operations (2)
   a. Not “schlocky”
6. Engage and/or benefit agribusiness (2)
7. Build on lessons learned from other resource park efforts (2)
8. Plan infrastructure needs now for Senate appropriations request (2)
9. Utilize access to freeway for advertising (1)
a. Messaging on jobs, tons diverted
b. “SOL” South of Landfill District designation
10. Public messaging regarding behavior changes needed (1)
   a. Add collection of organics
11. Use Resource Park as chance to centralize processing in County for recycling and organics (1)
12. Plan for WTE ash processing now 1M tons (1)
13. Sustainable CCRs/Human-scale development, make a top destination (1)
14. Research and Development with Universities/Cooperative Incubator
   a. RDT&E → C
   b. K-12 STEM
   c. “Maker” space Leonard St.
   d. Garage entrepreneurs
15. Public-private collaborative
16. Leverage Western Michigan growth and attract industry
17. Reuse with NGOs
18. Cultural organizations tie-ins (GRAM, Zoo, Meijer Gardens)
19. “Medical Mile” tie-ins (energy production)
20. Combined service pricing for households (not separate “free” recycling as now)
21. Stormwater and sustainable site management
22. Inclusion of under-represented groups in stakeholder process
23. Retail tie-in onsite and bay at the Mall

IDEAS FOR RESOURCE PARK TENANTS:

- Steelcase
- Dar: Pellets for wood stove
- Reuse of wood sheets
- Bio CNG
- Steve Simmons: 2 anchors: 30 acres, 50 acres, 5 @ 8 acres each plus odd lots
- Possible suite: C&D, MRF, MWPF, Organics (anaerobic digestion), power generation
- Harvey: Data Center, Under Armor/Patagonia, MWPF
- One manufacturer of consumer products
- Bill: SynTech Bioenergy (MSW to Biochar—Michigan Tech wants to make biochar as well)

Noon-3pm (lunch + afternoon session)

*Add Ryan Musch, FTC&H*

1 – Community Stakeholders
   Stakeholders (1 from each would be Stakeholder Review Committee)
   o Public
   o Private waste haulers
   o Chambers of Commerce
   o Municipal
   o Social Service
   o NGO/Environmental
   o Manufacturers
2 – Timing and format of meeting(s)
3 – PR Strategy (local to build support; national to find tenants)
4 – Wrap-up

NOTES:

- Plan for Community Stakeholder meetings completion before Thanksgiving
- Aim for rural and metropolitan meetings
- Invite Johnson Tools & Lake Plastics
  - ACTION: Byrum & Fisk add both to invitee list
- Plan for participants to review a web briefing prior and/or survey tool
  - ACTION: GBB finalize what will be shared for background/engagement
- GOALS for attendees at the meetings:
  - See the vision/possibility/blank slate
  - Understand process & timeline
  - Understand that 1 from each group will be on Stakeholder Review Committee to have continued involvement and review 2nd Master Plan draft (after DPW, before Commissioners)
  - Identify major barriers (#1 question to be answered)
  - Tell us: Who else needs to be in the room?
  - Tell us: What could you contribute?
- Kristen noted Oct 7th Byron Center booth opportunity
  - ACTION: Decide to pursue
- Steve Faber noted teletown hall option for the meetings
  - ACTION: Decide to add; could also consider live streaming from each meeting
- Dan noted using the Door Township, Byron Township meetings as a way to communicate the plans
  - ACTION: Add to PR strategy
- Steve Faber noted that the editorial boards training is important
  - ACTION: Byrum & Fisk finalize and coordinate plans for PR strategy, contact list questions for meeting, process for briefing participants

Wednesday, September 13, 2017
9am-1pm: Meet at Kent County DPW, 1500 Scribner Ave NW, Grand Rapids, MI 49504

All invited from previous day

Site Tours

- 9:00 Depart from Scribner Avenue office
- 9:15 -9:45 North Kent Transfer Station
- 9:45-10:00 travel to Recycling Center
- 10:00 -10:45 MRF (there’s another luncheon and tour at 11:45-2:00 that we should avoid)
- 10:45-11:00 travel to South Kent Landfill & Resource Park site
- 11:00-12:00 South Kent Landfill & Resource Park
- 12:00-12:15 travel to WTE
- 12:15 WTE tour
- 12:45 lunch at WTE
NOTES:

- **North Kent Recycling & Waste Center**
  - This is also the site of the now-closed North Kent Landfill
  - There are also 4 landfills outside Kent County (Pierson, Coopersville, Autumn Hills and Belmont)
  - Huge opportunity for redesign at North Kent Recycling & Waste Center into a customer convenience center to increase diversion; need a new site plan for Comp drop off and reuse area; partner with NGO
  - Tip fee now is $36.10/ton plus fees for in-County waste

- **Kent County Recycling & Education Center (MRF)**
  - Great education aspects; impressive but too small and out of date
  - Operates now M-F 7:30am-5pm
  - Estimated 10% incoming contamination; unknown total including residual
  - Currently $35/ton (was $10/ton in 2015 and prior was free)
  - Processes 140 tons/day, 40K tons per year; 60K tons/year is maximum with 2 FT shifts
  - Most Kent County material comes here; small WM, Republic and Chef operations nearby
  - Idea to repurpose into an education and convenience center (expand electronics and HWW as in Lee County FL—great stacked pallets in warehouse there)
  - Organicycle collection to Spurt processing is available in City of Grand Rapids for yard waste, food waste, paper ($65/quarter)

- **South Kent Landfill and Resource Park site**
  - Idea to triage loads before dumping into the cells
    - ACTION: GBB get WWTP analysis of ash and MSW leachate from South Landfill
  - Expected end of landfill life was 2024, but now 2030 given the vertical expansion approval
  - Vast expanse of both landfill area and Resource Park. Powerful visual experience for the public to understand the project.

- **Covanta WTE Facility**
  - 300 tons ferrous per month pulled from WTE
  - 5M tons waste processed since opening
    - $1 coins/ton of waste is standard—recapture!
  - Exceeding capacity and 300 (up to 450) tons per day backhauled to the landfill
o 13-14 megawatts produced (power for city of 130K)
o 2 boilers, 3rd line planned but not in place
  ▪ 2000 degrees on grate surface, heating water pipes
o Steve Simmons noted Enerkem is 1000 tons/day in other proposals

1pm-2:15pm (lunch + afternoon wrap-up)

Recap and next steps

• “What struck you after tours?”:
  o STEVE FABER: Size of Resource Park potential, old vs. new storytelling, legacy mindset
  o STEVE SIMMONS: Rail spur and highway access
  o JENNIFER: Virtual reality/drone camera technology application is real
  o TARA: Behavior change needed for residents and businesses
  o PAUL SMITH: Advertising potential (idea for transfer trailers; Molly noted successful Laugh Fest “smiley face” campaign to gain interest prior to release
  o HARVEY: Differential tip fees to drive behavior as in New Jersey
  o HARVEY: Scale houses as point of education and triage with NGOs
  o HARVEY: Revisit GBB Efficiency Reviews for Ash, North Kent redesign, C&D processing)
  o DAR: Collective effort with Project Team and Community but he will be spokesperson and needs to ensure success; needs also transparency (Go Pro footage idea)
  o DAN: Needs to be a viable financial model with technology that is commercialized
  o KRISTEN: Collection systems need to be in place for residences and businesses to encourage diversion
  o HARVEY: MRF needs to increase size, as though at new Resource Park. Existing could be re-use center
Meeting Notes: October Monthly Team Call

Wednesday, October 11, 2017, 10am

Skype/phone call

Kent County: Dar Baas, Kristen Wieland, Bill Stough, Dan Rose
Byrum & Fisk: Steve Faber, Nick Dodge, Mark Fisk
GBB: Steve Simmons, Harvey Gershman, Jennifer Porter, William Cooper

**PR Strategy:**

- PR strategy circulated for comment from Byrum & Fisk; plans in place for Launch Kick-Off PR event as well (file uploaded to Sharefile)
- “Resource Park” terminology
  - BILL: Sustainable Business Park will likely work with broad audience, but likely need to get more specific with certain audiences i.e. circular economy, zero waste
  - STEVE FABER: May want to incorporate reviving industry through recycling - bring in resource recovery language
  - HARVEY: RCRA – will people associate this with incineration?
  - Will go with sustainable business park; this can evolve
- Is everyone satisfied with the trade publications and local media outlets that have been identified?
  - DAR: Add Crain’s Detroit and West Michigan Business Journal as media contacts
- Messaging concepts—develop preview materials that can be housed on project website too:
  - WILLIAM: Recycling industry through the recycling industry!
  - DAR: Emailed the following during the meeting:
    - 8% of what is delivered to WTE is OCC; equals 20,720 tons annually. At today’s commodity rate of $160/ton = $3.3M annually.
    - 26,000 tons of food waste is delivered to the WTE annually.
    - 108,776 tons of compostable organics (food waste included), or 42% of what is brought to the WTE.

**Community Stakeholder Meetings:**

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<th>Wednesday Nov 15th</th>
<th>Thursday Nov 16th</th>
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<tr>
<td>8am</td>
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<td>Regional manufacturers: The Right Place</td>
<td>Real estate/eco dev: The Right Place</td>
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<td>Noon</td>
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<td>Municipal officials: Scribner Office</td>
<td>Environmental/nonprofit: Recycling Center</td>
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<td>2pm</td>
<td>Private haulers: Byron Township Hall</td>
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<tr>
<td>7pm</td>
<td>Public meeting: Byron Township Hall</td>
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- Invitations being drafted and will be sent week of 10/16; Invite list is nearly complete
  - Dar sent notes by email for Steve Faber to incorporate for specific additions/updates
  - ACTION: All tell Jennifer which meetings you plan to attend
ACTION: Dar will confirm Shana Shroll (update after meeting: Shana declined; Dar now asking Dick Vander Molen)

- Question – what do we want to hear from each stakeholder group?
  - Environment:
    - Hope they see that something is finally being done
    - See the value and opportunity to fix it
    - STEVE FABER: find tangible examples where they can help
  - Regional Manufacturers:
    - Security is imperative to them
    - Associate them with zero waste
    - See it as an economic development tool
    - WILLIAM: Recycling Economics 101: Recycled materials = raw materials \(\rightarrow\) cheaper inputs to production
      - Can we have a Resource Park membership/certification or a special Michigan membership/certification
      - “Our decking is made of 30% recycled content, all of which is generated and processed in the U.S.A!”
    - DAR: How can we support Agribusinesses?
  - Waste Haulers:
    - Need to challenge the concept that DPW is empire building
    - Emphasize the value of being a private partner in the public/private partnership
  - Municipal:
    - See the need for more aggressive ordinances
    - Better understand what needs to happen
    - See their responsibility for how the waste shows up
    - Explain in terms that people can visualize – How many times can you fill up University of Michigan’s “The Big House”
    - HARVEY: Ask: what do we have to do for you to move material to the Resource Park? Jobs, revenue sharing?
    - DAN (by Skype message during meeting): We need to involve regulators and utilize local townships – they can be hugely helpful in implementing positive change. Also have a lot to say on re-use benefits Jeff Spencer and Katie Venechuk from DEQ are great contacts
      - ACTION: FTC&H will establish meeting with state regulators

- Preview Material
  - In development based on PPT Kristen has already created
- Video/virtual reality
  - Drone video footage happening soon; plans to overlay audio
- Poster from FTC&H
  - Forthcoming for 10/20 infrastructure plan for appropriations request; can be used for meetings as a poster

**Targeted high-level meetings:**

- Steve Simmons noted that Veolia meeting in NYC coming up 10/13; others planned.
Ash processing

- Jennifer will set a separate meeting; GBB has prepared documents/research in previous work
- Likely going to set aside for now

Purchasing tool for RFI

- Jennifer will arrange separate meeting with Dar/Purchasing for planning

Next Monthly call: Wednesday November 8th, 10am (CANCELLED)

SUMMARY OF ACTIONS NOTED BY ORGANIZATION

- ALL
  - RSVP for meetings you will attend Nov 14-16 (if any)

- KENT COUNTY
  - Finalize Stakeholder Review Committee Chair
  - Finalize preview materials
  - Advance video collection

- BYRUM & FISK
  - Plan launch/kick off
  - Send invites Nov 14-16; send Jennifer final Excel for Sharefile upload
  - Advance video post-production

- FTC&H
  - Infrastructure plan for 10/20 with poster for Community stakeholder meetings
  - Plan meeting with regulators with DPW

- GBB
  - Follow-up meetings and notes; report drafting
**Meeting Notes: December Monthly Team Call**

**Wednesday, December 6, 2017, 10am**

Skype/phone call

*Kent County: Kristen Wieland, Molly Sherwood, Dan Rose*
*Byrum & Fisk: Steve Faber, Nick Dodge, Mark Fisk*
*GBB: Steve Simmons, Harvey Gershman, Jennifer Porter, William Cooper*
*FTC&H: Ryan Musch*

**NOTES:**

1. **Community Stakeholder Meetings Recap: Steve Faber**
   a. The team worked with 6 different Community Stakeholder Meetings Nov 14-16. 50+ people in attendance overall over 3-day period.
   b. Well attended set of meetings; started with presentation by Kristen, augmented by a small one-pager defining the Resource Park concept. Steve Faber facilitated the meetings with a great “6 hats” approach.
   c. Excellent media coverage. See Media Round up for more detail.
      i. Media tour of site with two local media resulted in good coverage;
      ii. Big success with business journal piece got picked up by Associate Press and went national; trade industries picked it up too.
      iii. Getting positive word of mouth feedback from public. Including media roundup in the RFI to give credibility to what is being advanced.
   d. Sending follow up email to those there and to those not there with a re-tooled presentation and link to the project website.
   e. Planning more outreach in 2018 to neighboring Allegan County and local municipalities
      i. Need to establish direct contacts to make sure understanding is out there accurately and there is understanding why this effort is important from a long-term standpoint.
      ii. See NOTES from Community Stakeholder Meetings for more detail.

2. **Stakeholder Review Committee: Kristen Wieland**
   a. Objective was to get a representative from each of 6 groups represented in this committee; some volunteers and some chosen.
      i. Bill Stough – manufacturers
      ii. John VanTholen – haulers
      iii. Rick Chapla – economic development
      iv. Dick VanderMolen – chair
      v. Katie Venechuk – state government
      vi. Kari Bliss – PADNOS recycler
      vii. Bill Wood – environmental (tentative)
      viii. ? - Local municipal (Kent County)
      ix. Dorr Township Supervisor - Local municipal (tentative)

3. **RFI Process: Jennifer Porter**
   a. GBB will talk today with Kent County Purchasing for process to follow for RFI;
   b. GBB will draft over holiday;
c. **Next monthly meeting January 17th** and project team will have Draft RFI to review by then

d. Plan to do an online survey for regional manufacturers regarding waste generation coupled with what GBB did in ZWL report;
   i. DPW decided to stick with 50-mile radius for estimated 1,500 data points
   ii. We will ask for estimates of waste and potential interest in Resource Park both supply and offtake
   iii. Will use Type Form platform for survey.

e. Kristen and Bill are drafting a “What is Resource Park?” highlighting the difference between recycling and WTE as well as “What values do we want to prioritize?” Resource Park objective is to minimize waste destined for landfill disposal so that landfill needs into the future are minimized. Priority will be to engage recycling processes as a priority. GBB will include the final guidance in the RFI.

4. **Site Review: Ryan Musch**
   a. Existing conditions report is complete. Some old endangered species are present; a couple of streams to re-route; Buck Creek on site near railroad with a conservation easement for a small area so we can’t develop over it and in an area we don’t need – about ¾ acre.
   b. Overall message – a few minor things but nothing to hold up development.
   c. Have mapping done; mostly farms and fields with some forests; relatively flat but areas with 30’ relief; Utilities map – mostly in the north and some on the west of the property. Also have developed a detailed spreadsheet with the utilities in terms of capacity.
   d. This will be Chapter 2 of the Master Plan.
   e. Dar wants to ask the State for funding for 2019 budget request for using the $2 million request—need by mid-January 2018.
      i. Jennifer and Ryan will follow-up

5. **Master Plan report status** – 9 chapters in it; starting to advance it as we go.
   a. Chapters 1, 3, 4 being drafted to date by GBB; FTC&H has Chapter 2.

6. **Other updates** –
   a. MDF facility (Arauco) opening north of Kent County – follow up on this through Bill Stough
   b. Cocoa Composting operator planning to open up composting site in Allegan County in the south. Cocoa was in the manufacturing meeting
   c. Can we identify C&D loads coming into our site? Important to get data on this.
      i. William and Jennifer to follow up with DPW

**Schedule**

Next monthly meeting: January 17, 2018, 10am
Meeting Notes: January Monthly Team Call

Wednesday, January 17, 2018, 10am

Skype/phone call

Kent County: Dar Baas, Kristen Wieland, Molly Sherwood, Dan Rose, Bill Stough
Byrum & Fisk: Steve Faber
GBB: Steve Simmons, Harvey Gershman, Jennifer Porter, William Cooper

NOTES: NEW (40 mins)

• Request for Information for Kent County Resource Park (combined PDF issued)
  i. Transmittal Memo
  ii. Scope of Work (items highlighted in green to be confirmed)
    1. Added mining of ash Monofill plus ferrous/non-ferrous recovery at landfill
    2. Project type / size matrix included

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i. Dar noted that per state law, any process with more than 10% residue is considered a solid waste processor as opposed to beneficial re-use
   a. There is a State statute language we can use.
   b. **Action:** GBB address in the RFI what the average residual rate is from the process as it will change the classification of that processor and affect the permitting process.

   a. **Action:** GBB will receive County feedback and reach out to Stern Brothers

4. Confidentiality: GBB advises to not have confidential materials submitted. County can advise.

5. DPW Comments due back 1/31

6. GBB will add DPW values statement as well as manufacturing survey results.

iii. Distribution

1. Once posted on County site (expected 2/15):
   a. DPW direct email Stakeholder list of 275
   b. GBB direct email technology and process business list of 200
   c. MMTC-W issue to survey list of 500?
      i. Bill Stough noted that it is important to realize that the recipients of the survey are small and medium size businesses who may not have a good understanding of their waste practices right away and won’t be able to say with
certainty that they can incorporate materials from the Resource Park in their production processes.

ii. **Action**: GBB will reach out to Rick Chapla/The Right Place for additional distribution to its list instead of the MMTC-W list, except where emails were provided for follow-up from the survey respondents.

d. Closed Loop Fund requested to send to its list

e. Media/Press Releases planned: idea to do story on increasing waste generation in Kent County prior to RFI release to keep interest up; then announce RFI

i. Additional idea for impact on China’s policy changes

ii. **Action**: Steve Faber follow-up for media release plan

iii. **Update**: Governor Snyder announced Renew Michigan $79M programs on January 30th ($9M for solid waste) from increasing the state environmental fee from $0.36 to $4.75/ton.

iv. **Action**: DPW upcoming meeting January 23rd with MDF facility Arauco. GBB will add them to the RFI list.

**RECAP (10 mins)**

2. Stakeholders received ‘thank yous’; 10-member Stakeholder Review Committee (SRC) chaired by Dick VanderMolen almost finalized; Virtual Reality planning underway. Chamber of Commerce presentation will be in April. Handout preparation underway by Byrum & Fisk for SRC and general use.

3. MMTC-W Manufacturing survey is out; due January 19th; 30 respondents to date.

4. New C&D plan in effect
   - Loads now being tracked at transfer stations
   - Possible waste characterization in future

5. FTC&H site report submitted to project team after last meeting
   - Comments welcome
   - **Action**: GBB resend site report

6. DEQ survey received--will incorporate relevant elements into Master Plan

**COMING UP (10 mins)**

1. Proposed San Jose field trip as new task for late February/early March
   - **Action**: GBB to estimate cost for each County person in terms of direct expenses

2. Appropriations request will be submitted with DPW and Rick Chapla
   - **Action**: GBB issue updated Appropriations request

3. Michigan Recycling Coalition Conference project presentation submitted

4. January 31st trip planned to Phoenix to tour Resource Innovation Campus (**Update**: Kristen and Jennifer will meet in Phoenix for the tour).
   - **Action**: Send a list of questions and topics/questions for Phoenix

**Schedule**

**Next monthly meeting: February 7, 2018, 10am**
Meeting Notes: February Monthly Team Call
Wednesday, February 7, 2018, 10am

GoTo Meeting Phone call

Kent County: Dar Baas, Kristen Wieland, Molly Sherwood, Dan Rose, Bill Stough
Byrum & Fisk: Steve Faber
Stern Brothers: Les Krone
FTC&H: Ryan Musch
GBB: Steve Simmons, Harvey Gershman, Jennifer Porter, William Cooper

NOTES

1. Phoenix Resource Innovation Campus trip took place last week. Kristen and Jennifer met with Lucas Mariacher (Zero Waste Coordinator) and Brenda Yanez (Public Information Officer) from the Public Works Department and toured the facilities. On the site, they have a closed landfill and a waste transfer operation to the current landfill 65 miles away. A nice compost facility was created with a $14M city investment in infrastructure, now operated by WeCare. Size will be 27 acres at full roll out, processing 270,000 tons per year (approximately 55,000 tons per 5.5-acre phase). No anchor tenant, limited responses from Call for Innovators. Partnership with university in place. Palm frond recycling is about to start. Population is 1.5M in the city and 4.5M in the region.

Lucas Mariacher lucas.mariacher@phoenix.gov
Brenda Yanez brenda.yanez@phoenix.gov

From website: https://www.phoenix.gov/publicworks/reimagine/learn-more

In 2013, the Public Works Department launched its waste diversion and sustainability initiative, Reimagine Phoenix, with a citywide goal of diverting 40 percent of trash from the landfill by the year 2020 by considering how we reduce, reuse, recycle, reconsider, and reimagine healthy consumption habits to minimize waste in our daily lives.

The Reimagine Phoenix initiative aims to redefine trash for Phoenix residents and businesses. Through its programs, its campaigns, its partnerships, it demonstrates that waste is a valuable resource and could be transformed into other products or source of energy.

The Public Works Department will focus on improving three areas that will help achieve the city's waste diversion goal of 40 percent:

- Solid waste programs - enhancing current city solid waste programs to encourage more sustainable practices, such as recycling and composting.
- Private and public-sector partnerships - partnering with industry and community leaders to find viable solutions to waste diversion issues and concerns.
- Community and educational outreach - increasing communication and education about diversion and sustainability efforts to residents and to businesses.

Resource Innovation Campus overview video: https://www.youtube.com/watch?v=BaEtveNoaXM
2. RFI Comments from DPW (25 mins)
   - Sustainable Business Park name change: Global change instead of Resource Park
   - Adding optional meeting: have this been a webinar or live meeting with a tour option, have questions submitted by notecard on the tour to keep track of official responses which can be issued to all later. Purchasing representatives should be present.
   - 2017 data: GBB will update
   - Map with FTC&H: add potential uses/partners: C&D, composting, MWPF, etc.
   - DPW land ownership with long-term lease
   - 25,000 hours in experience and quals in commercially-proven: will go with GBB opinion
   - 1,000 hours commercially-demonstrated: will go with GBB opinion
   - Desired business relationship, will update AAA rating etc.

3. RFI Schedule (10 mins): Revised as below, extend to 8-week process to allow for San Jose trip in the middle and also the optional meeting/tour
   - Feb 28th issue RFI
   - Week of March 19th San Jose
   - March 28th optional meeting/tour: Ask for RSVPs
   - Questions due April 6th
   - Responses to questions April 12th
   - RFI due April 26th

4. Stern Brothers engagement (5 mins): Meeting set for Feb 13th to ensure that Stern can both act in its role for the assignment and also be able to underwrite projects down the road for the Park

5. RECAP (10 mins)
   - Stakeholder Review Committee formed; letter issued from chair
     - Dick VanderMolen – chair
     - Bill Stough – representing manufacturers
     - John VanTholen – representing waste haulers
     - Rick Chapla – representing economic development interests
     - Katie Venechuk – representing state government
     - Kari Bliss – representing local business
     - Bill Wood – representing environmental interests
     - Steve Achram—representing building and construction industry
     - Doug LaFave—municipal representative (Kent County)
     - Jeff Miling—municipal representative (Allegan County)

   - MMTC-W Manufacturing survey results in

Working with Sustainable Research Group, MMTC-W and The Right Place, an online survey was issued during January 2018 to 500 small- and medium-sized manufacturing companies within a 50-mile radius of the prospective Sustainable Business Park. From the thirty-five (35) responses received, a majority wanted to divert as much as possible from landfill; cost was the top concern followed by environmental benefits in terms of what would entice them to use of the Sustainable Business Park; and, asked specifically about the amount of wood waste generated, nearly 90% of respondents reported to generate less than 25 tons per year.
• Appropriations request updated

6. COMING UP (5 mins)
   • San Jose field trip planning underway for week of March 19th (Monday-Thursday)

Schedule

NEXT MONTHLY MEETING: March 14th 10am (CANCELLED)
Meeting Notes: April Monthly Team Call
Wednesday, April 11, 2018, 10am

GoTo Meeting Phone call

Kent County: Dar Baas, Kristen Wieland, Molly Sherwood, Bill Stough
Byrum & Fisk: Steve Faber, Nick Dodge
FTC&H: Ryan Musch
GBB: Steve Simmons, Harvey Gershman, Jennifer Porter, William Cooper

NOTES

7. San Jose recap (5 mins): Trip report issued to the team by Steve Simmons with photos and text.
   • Great mix of public, private facilities, processing mixed waste and C&D.
   • Kristen noted that the Zanker facility with C&D processing and mechanics was great to see it working. It was impressive. However, seeing all of the bales at the Republic facility made Kent County issues seem small in terms of materials marketing.
   • With markets drying up, materials will push to piles or landfill. Highlights the need for quality control. Steve Simmons noted the plastic contamination in the paper bales.
   • Zanker was a disappointment to Dar because so much was going to ADC.
   • Steve Simmons noted that painted, stained wood can’t go into the fuel market, so mulch markets will not take the painted wood, putting stress on the biomass facilities in CA.
   • Dar’s other takeaway is that the Newbie facility with the source separated wet waste/organics line next to the dry line was a mess. Raised many question marks. Didn’t get to see conversion per say, more waste processing.
   • Dar also noted that Kent County is sending low value plastic to Vexcor for RDF. Also working with road closure/construction sites, unable to recycle the plastic barrels because of the reflective tape, also looking to see if Vexcor can take that material for RDF.
   • Bill Stough asked about the Monterey set up.
     i. Steve Simmons commented that it was a lightweight C&D system. No concrete, rubble, rebar. More clean wood/demolition, not heavier materials. If SBP ends up with C&D facility, Bill would like more of a heavy-duty approach for the wood waste.
   • Harvey commented that the furniture material should be approached for reuse and not be mixed with regular C&D—scraps of scraps could go for gasification.
     i. For reuse, Bill commented we will have more supply than demand.
   • Harvey noted we should strike a deal with Habitat for Humanity and highlighted the size/quality of material noted in Zero Waste to Landfill report. Reuse before energy.
   • Bill was impressed by the dual collection of organics and single stream at Sunnyvale. Many communities want single pass if they can get it.

8. RFI Distribution and Timeline (5 mins)

<table>
<thead>
<tr>
<th>Timeline Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPW Issues RFI</td>
<td>March 2, 2018</td>
</tr>
<tr>
<td>Optional meeting/facility tour</td>
<td>March 28, 2018</td>
</tr>
<tr>
<td>Respondent Deadline for Submitting Questions</td>
<td>April 6, 2018</td>
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<tr>
<td>Event</td>
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<tr>
<td>DPW Deadline for Submitting Question Responses</td>
<td>April 12, 2018</td>
</tr>
<tr>
<td>Respondent Deadline for Submission</td>
<td>April 26, 2018</td>
</tr>
<tr>
<td>Evaluate and incorporate RFI data into Master Plan, as appropriate</td>
<td>Summer 2018</td>
</tr>
<tr>
<td>Present Master Plan and Recommendations to DPW</td>
<td>Summer 2018</td>
</tr>
<tr>
<td>Notify Respondents of Next Steps for Sustainable Business Park Development</td>
<td>Fall 2018</td>
</tr>
</tbody>
</table>

9. RFI Evaluation Procedure (15 mins)

- Bill Stough: this is an exciting process. In order to get approvals needed, will the RFI submissions lead to approval?
- Dar has been working through this question, the RFI responses will flesh out enough about what the future of the SBP will look like, go/no go, nailing down costs and revenues, which will feed into Master Plan. The draft Master Plan will have to go to DPW and Board of Commissioners. Dar sees it happening later this year.
  - Dar further noted: who funds it, how it gets paid for, what bonds look like? As an Enterprise Fund, DPW has to pay our bills including debt service. This is where the rubber hits the road in terms of if it pencils out.
- Harvey gave an overview of his vision: Picture a shopping center that may collect revenue from leases and/or sales. Might be a payment in lieu of taxes but imagine the SBP creates a revenue stream that is adequate to keep the revenue stream that the County has intact. This would be the way to set up a new model for the infrastructure needed to support the new assets, for C&D, gasification, etc. Will it work?
  - The more that we can attract companies that can make higher value goods from the streams, it will be easier to accomplish this. How to keep the rate structure from being impacted significantly? The fact that the markets are tanking per China is a great motivating factor for what we have going on. We may need to pay more to meet the goals, beyond inflation.
- Dar sees the future of DPW looking like 3 legs:
  - The Landfill, but it’s old technology, want to preserve the capacity, but move away from it as the model
  - WTE facility
  - Single stream processing and SBP
- Waste Management was at the March optional meeting since they have a landfill in the adjacent county. With WTE contracts expiring 2025, local interested parties may want to approach the municipalities about disposing at other landfills going forward for a lower rate.
- Bill Stough notes that DPW should get a tour of Chef MRF in Holland since Republic just bought it.
- August 2, 2018 (1st Thursday) Dar’s board meeting work session to focus on the draft Master Plan. It cannot be finalized at this point. Would send them a Master Plan draft prior to the meeting, get buy-in, yay or nay, with the idea that the Stakeholder Review Committee will have already met prior as well.

**Outcome**

GBB will categorize RFI respondents and work with DPW to advance two groupings of tenants who 1.) coalesce as a possible grouping and 2.) work within the dynamics of Kent County’s
solid waste system to collectively meet diversion goals. FTC&H will then lay out the two groupings of tenants for the Master Plan. GBB will also advise on procurement next steps with individual respondents*.

**Proposed Timeline of Current RFI Evaluation (see full schedule on page 4)**

<table>
<thead>
<tr>
<th>STEP 1 (2 weeks):</th>
<th>GBB Complete categorization in Excel Matrix (ATTACHED)</th>
</tr>
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<tbody>
<tr>
<td>STEP 2 (4 weeks):</td>
<td>GBB work with DPW to advance two groupings of tenants which FTC&amp;H will develop for the Master Plan</td>
</tr>
<tr>
<td>STEP 3 (4 weeks)</td>
<td>FTC&amp;H develop 2 site plans</td>
</tr>
<tr>
<td>STEP 4 (2 weeks):</td>
<td>GBB complete Master Plan narrative for RFI</td>
</tr>
</tbody>
</table>

*Additional Evaluation*

Procurement-level review of some offerings, specifically the ash monofill mining / metals extraction proposals, is anticipated to be advised. This evaluation is needed for decision making at WTE. A change order would be required here.

10. Stakeholder Review Committee (2 mins)
   - Dick Vander Molen (chair) was on the San Jose tour as well. Desired to have the Committee meet to have an overview prior to looking at RFI. They will meet in early May with lunch and have tours. May 9th is expected, 11am until 3-4pm. Will have tours and vehicle together.
   - Allegan County and Dorr Township conversations underway: Ryan Musch has asked about his involvement in the May 9th meeting.
     i. ACTION: Who from Allegan and Dorr planning teams should be involved with land use planning? FTC&H will find this out. Dar wants to have it mapped out and understood. Will bring back information next meeting.

11. Master Plan Update (10 mins)
   - Sustainability Certification Benefits & Program Options: ISI Envision / Sustainable SITES / LEED. Dar has the Holland final report showing the community effort of the project and their Envision certification. Dar wants natural areas and wetlands, tours. Ryan noted that SITES certification sets up LEED certification for the future.
     i. ACTION: FTC&H will issue overview information to group

12. Finance Team Member Update (5 mins)
   - GBB is seeking a replacement for Stern Brothers

13. Appropriations (5 mins)
   - DPW to inform GBB if anything needed at this juncture

14. COMING UP (2 mins)
   - City of Grand Rapids (April 11th)
   - Zero Waste User Group (April 12th)
   - Chamber of Commerce (April 17th)
   - Michigan Recycling Coalition (May 16th)
**REVISED UPCOMING SCHEDULE**

- **May 9**: Cancel monthly SBP team meeting/DPW to host Stakeholder Review Committee (SRC) meeting/tour
- **May 29**: Virtual SBP team work session (review draft Evaluation Matrix)
- **June 13**: Monthly SBP meeting (review final Evaluation Matrix/advance to SRC/FTC&H begin draft layouts)
- **July 11**: Monthly SBP meeting (review draft Master Plan/prep to issue materials to DPW Board)
- **August 2**: DPW Board meeting/Draft Master Plan work session
- **August 8**: Monthly SBP meeting
- **August 31**: Final Master Plan to DPW
Meeting Notes: May Monthly Team Call
Tuesday, May 29, 2018, 10am

GoTo Meeting Phone call: Virtual RFI Work Session

*Kent County: Dar Baas, Kristen Wieland, Molly Sherwood, Bill Stough*
*Byrum & Fisk: Steve Faber, Nick Dodge*
*FTC&H: Ryan Musch*
*PFM: Brandon Lewis*
*GBB: Steve Simmons, Harvey Gershman, Jennifer Porter, William Cooper*

**NOTES**
Welcome PFM! Thank you, William Cooper, for your work on this project. Good luck with your next steps!

**RFI Evaluation Matrix**

- Dynamic review
- Great interest: 23 respondents but more than 30 companies
- There has been additional interest beyond the 23 respondents. DPW should capture additional interest on the DPW website
- Steve Simmons, high-level review of Matrix:
  - More weight given to the technology provider, rather than the project developer
  - Emphasized the classifications of different proposals → proven, demonstration, pilot
  - Reviewed developer and technology (selected comments below; see Matrix for full review)
    - **PROVEN MWP**
      - Mustang → has won proposals but has not developed any plants. Vendors are well-qualified,
      - Urbaser → Proven supplier, also open to ownership by County
      - Entsorga → well experienced developer and operator of facilities, facility opening in Martinsburg, WV
      - Sacyr Rooney → can build and work with county on the WTE front, well proven
    - **DEMONSTRATED MWP**
      - Enerkem → MSW to Biofuels. Don't have 3 years of experience producing ethanol at this scale so rated as demonstration
    - **PILOT MWP**
      - Ecohub: No demonstration facility so they're pilot
      - MTU → Professor with torrefaction technology, looking at accessing grant funding for role
      - Fresh technologies → gasification
    - **PROVEN ORGANICS**
      - Spurt → west Michigan company, already established, already have a market, already handle Source Separated Yard waste. Need additional space. Proposing to use ASP from Engineered Compost Solutions (GBB is
familiar with it, we’re comfortable and believe it’s a proven company for Source Sep Organics)

- OWS → MWPF that process the organic fraction. OWS has backend tech (SORDISEP) to clean the compost/digestate to a spec that meets land applications for food and agriculture IN EUROPE. This would allow a high level of diversion with no thermal technology
- Cocoa → Sent in list of questions than information
- Synagro → largest WWTP biosolids treatment company in the US. Would like to build a combined solids organic (food and yard) and liquid/biosolids

- DEMONSTRATED ORGANICS
  - Plexus → well known equipment for Mixed Waste Processing of organics. We’re not quite as familiar with his technologies based on the info provided in the RFI
- C&D
  - Synova → gasifier technology, no reference plant for MSW
- TEXTILES
  - Fibr → textile re-use
- WTE ASH
  - Inashco → Propose to recovery ash and metals from current WTE plant and mining from the Ash Monofill; also proposing a significant value add to the DPW
  - LAB USA → Propose to recovery ash and metals from current WTE plant and mining from the Ash Monofill
  - Pure Recovery → not proposing to mine the existing Monofill

**COMMENTS:**

- DAR: Should Ash Mining be a part of SBP or its own development?
  - HARVEY: Seems natural to have this go out in front of facilities that will be in the SBP.
  - DAR: Will engage GBB separately since this is an internal system and not related to MSW
  - Harvey: Questioning whether we can extend this proposal or have to issue another RFP for this solicitation?
  - Kristen: From what we understood from Cal, we can engage any of the respondents directly based on the RFI.
  - DAR: Suggest that we engage with County Purchasing, give them two proposals and let that move forward.
  - Steve Simmons: spoke to Inashco, they said it will take about 120 days for proposal development because Inashco will come to the monofill and start taking samples from the monofill, offered to do that at their own expense.
  - DAR: Seems to make most sense to move this out of the RFI process
- DAR: Synagro → if we’re to move forward and review with them, we should engage City wastewater treatment plants that might be interested in processing
  - There should be a lot of wastewater sludge from neighboring municipalities that might be suitable for the Synagro facility
  - Grand Valley biosolids group investigated this
  - FUTURE FOLLOW UP: DPW to explore
- DAR: DPW very willing to develop traditional C&D processing that’s not presented here
  - Habitat for Humanity may be a good outlet for C&D
There may be additional groups that want to enter the fray, so Dar would like to establish a placeholder for these types.

There is interest and capability within the DPW to process C&D.

**DAR:** Haworth looking for an outlet for wood processing because currently paying $50/ton tipping fee to deliver to the Genesee plant.

There’s been talk among the furniture companies to process the wood waste themselves in a WTE plant; DPW will follow up with them about the tipping fee.

Steve Simmons: Enerkem is an excellent possibility for that wood waste and the tipping fee would probably attractive.

**HARVEY:** Might be better to try and avoid bringing that wood to WTE facilities, rather re-use the large and relatively quality wood that’s being thrown away by furniture manufacturers.

**DAR:** C&D processing, conversion and energy recovery must be the priorities since they are most viable.

For furniture manufacturers it’s all about reducing disposal costs.

Kristen: The content of this in terms of bringing this to the stakeholder review committees may be overwhelming.

What kind of change does this entail at the commercial and residential level?

Steve Simmons: Source-separated organics possibilities would require home-behavior change.

**OWS** is proposing MWPF organics which would essentially entail minimal if any changes for residents.

Jennifer: Everything we have to date is included in here on 4/26 initial response and 5/22 additional question responses received. We did receive additional materials from Cocoa today but prior to that everything is included.

The following did not advance to the Potential Groupings file due to lack of information or questions of efficacy, none are excluded from future procurements: Toterra, QCI Estech, Green Energy, Cocoa, Odom Re-use.

### Potential Groupings

Jennifer: Groupings A & B

- Broken down by systems, which companies can fit.
- A&B differ primarily by mixed waste processing: B is the non-thermal option of processing at the park.
- Both have source separated organics and ash processing and potential pilots/potential end-users.
- Our goal is to get to the point that we all concur these are the groupings for GBB to lay out in the Master Plan.

Steve Simmons:

- Front end of either system will look the same.
- In A → Residual product is aimed at recovering energy value
  - Combustion based recovery or turn it into a fuel product (Enerkem)
  - MWPF and recovery for energy
- In B → MWPF front end, and then whatever organics and organic residuals will be composted. Not great success in the US historically for that type of mixed compost beyond applying it for ADC.
- Purpose for groupings is to give FTC&H two different groupings to evaluate
  - B is likely to require more acres.
**COMMENTS:**

- Harvey: Emphasis on looking to building a 3rd line, generating a fuel product that can be combusted at the WTE plant
- Bill: Haworth is one of the larger generators of wood waste. They’ve indicated a new engineering study to review what they can do internally with their own wood. Concerned with the price of disposal
  - Steve Simmons: The Enerkem solution can be very attractive but if we can bring it together it might work out that they are able to figure out a suitable arrangement.
  - Bill Stough: Cocoa is trying to set up a pilot program to compost engineered wood waste. Have asked to set up a pilot program with the furniture manufacturers.
- Kristen: There are companies here that can manage significant amount of waste but would help if we can identify and address what the holes are here.
- DAR: Some sort of measurement along the lines of where the companies meet the DPW’s target. Will help shape the conversation with the community and the commissioners.
- Bill: Is there a way to do an estimate of the long-term liability between group A and B
  - Harvey: We can assess the ultimate risk and diversion, or liability with respect to having to rely on the landfill long term
  - DAR: Commissioner recently asked about the “unknown unknowns”
  - Harvey: we can do a financial estimate of closure and post closure costs for the landfill
    - Add a line item that describes the risk
  - Bill: even a broad definition of potential risk can serve
- Goal to advance two groupings for Master Plan layouts
- August 2nd deadline for meeting with County Board

**Review Sustainability Certification Benefits & Program Options: ISI Envision recommendation**

- Ryan: put together document to present range of sustainability options for this program
  - LEED is focused on individual building projects
  - Envision and Sustainable Sites can apply to larger developments like infrastructure type projects
    - Envision really focuses on infrastructure
    - Sustainable Sites focuses on site development and environmental benefits
- Bill Stough: Agrees with Ryan’s assessment. Would this be the first industrial park to have this certification in the region?
- Ryan: Likely yes. The Holland Park is certified by Envision but this would likely be unique in size, nature, and scale

**Next steps**

- FTC&H: Update on Allegan County/Dorr Township planning contacts; begin layouts
- PFM: Closed Loop Fund meeting; Rick Chapla, The Right Place

**SCHEDULE**

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Meeting Notes: June Monthly Team Call

Wednesday, June 20, 2018, 10am

GoTo Meeting Phone call

Kent County: Dar Baas, Kristen Wieland, Bill Stough, Dan Rose
Byrum & Fisk: Steve Faber, Nick Dodge
FTC&H: Ryan Musch, Heather Bowers
PFM: Brandon Lewis
GBB: Harvey Gershman, Jennifer Porter, Eric Weiss, Ashlea Smith

NOTES

- Additions/changes:
  - Dar asked to add Allegan and Dorr Township conversations
  - Bill Stough asked about other submissions/incomplete submissions

- Byrum & Fisk: Media update, plans forward

Leading up to Aug 2:

Need to plan for next 6-8 weeks. Looking for Aug 2nd DPW meeting. Updating core messaging now that we have a feasible plan. We need to focus on SBP as part of an integrated waste management system. This also positions us well as a response to China waste import bans. The 3-legged stool is WTE, MRF and SBP with landfill in background. SBP is being built up to replace the Landfill. Master Plan included stakeholders, the process has shown that the SBP is feasible, new technologies being proposed, it’s our local solution, and it’s a continued opportunity for local partnerships.

We want the Stakeholder Review Committee to do their work, evaluate and deliberate. Asking them and others to issue letters of support, excitement over process leading up to covered press event when it goes to DPW Board. Use this time stamp to unveil the plan and provide some tangible next steps.

Do we want to have an open house with the November 2017 stakeholder meeting folks?

DAR: Aug 2nd is a chance to take comments, approval will be Sept/October.

Also, to note: it’s time to stop using Landfill option as the delta for where we send material. If we are comparing the SBP to something, what are we comparing it to? MRF rates going up to $65/ton in January 2019, what does that mean? Dar met with Metro mayors of the 6 cities who participated in the WTE flow agreement. Issue exists that they pay more in the WTE agreement than the townships who send all material to landfill, other than source-separated material.

We need to start talking about jobs associated with recycling vs landfilling.

STEVE FABER: need to stay on message about SBP. Need to have SBP be positive punchline about decisions at WTE or rates at MRF.

HARVEY: Can change to charge for system vs. infrastructure so Kent County can put out material and not have to worry about concerns over end use.
Post-DPW Aug 2:

After plan approval before lease agreements/shovels in the ground, we will need to highlight ash, pre-processing WTE work, anything else DPW is working on behind the scenes. Need to map out how we can highlight clearing of future obstacles in the future site.

Do we need a marketing plan/business development for the actual site? How to RFI respondents find their place when the SBP gets implemented? Example Master Plan processes in Kent County happening now (Area 6), large sites which are currently in the marketing phase. Still some gaps from RFI which will build the system.

HARVEY: Can locations outside the SBP be used? Concept is land lease payments support the extra pre-processing infrastructure we are looking to put into place, so rate impacts are lessened.

DPW has the vision and influence; we have done this before in the 80’s with WTE, we can do it again.

DAR: Mayors think we need flow control county-wide or to be an authority to make SBP effective. We will get the argument that we should just put our MSW in another landfill.

STEVE FABER: Let’s set up a time to separately hammer out media plans.

- Steps ahead: Respond to 23 respondents in Fall
  - Ash advancing separately
  - University/R&D effort planning
  - Business development planning

How to keep people engaged but also have allegiance to those who responded? C&D is unaddressed.

Will have an open form on County website to let folks submit, no one is excluded.

Cocoa submitted questions, but want to submit a more detailed submission in the future

There are a couple examples of parks going forward: GM plant and Wyoming sites; there are some other park examples and how they promote themselves to look at

- FTC&H: Update on Allegan County/Dorr Township planning contacts
  - A FTC&H has discussed available public utilities with Byron-Gaines Utility Authority
    - Public Sewer exists in the general area. Capacity should be fine. Sewer will need to extend to the site.
    - Public Watermain does not exist in the project area. Site development will most likely require wells.
    - BGUA expects they will be able to work through utility agreements with Dorr Township/Allegan County, as the BGUA utilities will likely need to extend into the Dorr Township area of the site, as utilities are not available from Dorr Township.
  - Existing zoning is primarily Agricultural with a few parcels in Byron Township zoned Industrial.
  - Ryan will be scheduling a meeting with Byron and Dorr Township staff the week of July 2 or July 9 to discuss:
    - Existing Zoning & Land Use
    - Proposed Land Use and appropriate zoning for such
Approval process for rezoning and development

Dar noted need to focus on Dorr Township: SBP is a great industrial park or a Landfill. Would be better to be supportive of SBP. Allegan County has known Landfill is the plan if SBP doesn’t happen.

Dar met with Allegan County SW Planning Committee and sent letter requesting letter of consistency for their SWMP. At the meeting, the Allegan County SW Planning Committee, listened, deliberated and tabled the decision on whether it’s consistent because not enough information to decide since the tenants aren’t known yet.

Ryan will set up the planning meetings up; will let DPW know when the meetings are if staff want to join.

PFM: Updates

Discussed progress on financing chapter of report, highlighting potential financing options being explored at this stage (likelihood of each TBD).

- County level (GO bonds, LTGO bonds, cash)
- State level (MDEQ, MEDC)
- Federal level (EDA, USDA, EPA)
- Private (foundations, Closed Loop Fund)

EPA Region 3 and 4 are being proactive. Kent County is Region 5. Harvey suggests starting there.

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NEXT MONTHLY MEETING: Wednesday, July 11th 10am
Meeting Notes: July Monthly Team Call

Wednesday, July 11, 2018, 10am

GoTo Meeting Phone call

Kent County: Dar Baas, Kristen Wieland, Bill Stough, Dan Rose
Byrum & Fisk: Steve Faber
FTC&H: Ryan Musch, Heather Bowers
PFM: Brandon Lewis
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NOTES

GO TO MEETING
United States: (669) 224-3412
Access Code: 486-574-549

Draft SBP Master Plan section/special content presentations

- FTC&H:

  Will provide notes from Dorr Township and Byron Township, zoning, planners, and utility authority staff last Friday.

  Descriptions provided by FTC&H for Grouping A and B in chapter 8 of the draft Master Plan. Grouping A is energy production; Grouping B is composting focus with larger acreage. Both options have ash mining positioned by the landfill; this is also close the rail spur. The pilot grouping is show as 30-40 acres. Bill Stough asked if there are utility/land use differences between the two options. Answer is no.

  Largest utility challenge is water main. Grouping A $2-2.5 M; Grouping B $4.0-$4.4 M; Offsite improvements $7-$8 Million. Dan asked if gas, electric, fiber/cable? Ryan responded that they are not included since the development costs often include private utility costs. For offsite work, is road repair included? Ryan responded yes it was included, including Clyde Park being turned into a Class A road. Road and sanitary extension up to the park and the water main extension, which is quite far away. Is there a drawing of the utilities.

  ➔ Ryan would like to add existing utility drawing and potential utility improvement drawing.

  Dar asked if sinking municipal, private wells in lieu of public water main? Did have that thought, however, at the utility/zoning meeting, it came up that if the structures require fire protection, a municipal water system would be required. Microgrid options would make it more self-sufficient. Ryan will investigate the cut-off point for what could be built and still use a well.

  Rail spur access was not included in pricing; some respondents were interested, but we did not price that out. One respondent said they would make ethanol; in that case, rail might be attractive. Railroad will
o PFM: where to get the money to pay for the SBP; who runs/owns/operates the assets? There are a number of funding sources we have been in touch with. Some we are still planning conversations where you see highlighted TBD text.

Table 18 presents each funding source discussed for site infrastructure or for the private businesses which will operate in the park. None are guaranteed. Some are more likely than others, subjective ratings provided. Laid out by geographic moving out from the County.

Would SBA loans be applicable to the respondents.

Additional conversations still underway. Standard way to finance this project would be county funds; may be P3 funds available to the extent there is a diversity of types of infrastructure needed, it might be excluded. Just a toll road would be easier. Could still be possible.

Allegan County discussion/involvement? Source of funding there?

o GBB
Overview of the Master Plan. Will schedule next meeting.

o Byrum & Fisk reiterated the human-centered design element of the SBP. Won’t be all pavement; not all industrial space, recreation and trails. Talk to the Parks director about connecting to Kalamazoo through trail process.
  ➔ Can we conceptualize where the trail might be with input from Dan Rose? Can add that. Identifying natural area.
  ➔ Add education sections to the map. Could have central community center space with child care, coffee shop, dog park, recreation, education.

o All comments due July 20th from DPW and SRC
o Add meeting July 18th

Schedule

July 13       Stakeholder Review Committee
August 2    DPW Board meeting/Draft Master Plan work session
Meeting Notes: July Follow-up Team Call

Wednesday, July 18, 2018, 10am

GoTo Meeting Phone call

Kent County: Dar Baas, Kristen Wieland, Bill Stough, Dan Rose, Molly Sherwood
Byrum & Fisk: Steve Faber
FTC&H: Heather Bowers
PFM: Brandon Lewis
GBB: Harvey Gershman, Steve Simmons, Jennifer Porter, Ashlea Smith

NOTES

1. Discussion of Draft Master Plan comments/feedback: All will submit comments.
   a. DAR:
      i. Need more cost information on Master Plan to have go/no go
      ii. Need to update where Ash should go. Current location needs to be reworked for C/D processing, particularly organics. The evaluation of what the County might step into could be C/D. We can get early wins with C/D and organics on area related to the current landfill.
         1. Gives us an back-up if the SBP doesn’t advance.
         2. This property is in Kent County.
      iii. Think more about interplay between SBP and WtE, thinking about 3rd combustion at WtE. The 6 mayors of the flow control district asked if MRF would move to SBP; also would you build 2nd WtE at SBP.
      iv. Second issue is a critical policy issue, have not yet accomplished the various types of processing that’s out there. Need to know the percentage of the waste that would be diverted of processed and if these would meet the goals by 2030.
      v. Need to add a page to show the timeline to show the history of the department and the decisions that have been made.
      vi. Monetizing steam is issue of the WtE. Still needs to be finalized.
      vii. Private investment needs to be a win-win. Collection system needs to match. Path can show low risk, low capital.
   b. BILL:
      i. p. 3 in Executive Summary, 2nd full sentences sounds like the selling hook of the entire project.
      ii. Emphasizing the potential to capture lost economic value, reiterate WMSBF

2. Planning for Aug 2 DPW Board meeting
   a. Need to have comments in by July 20th to turn 2nd draft around by July 27th so Dar can issue packets for Aug 2nd
   b. Key points for the Board per Dar: this team did their Homework, we will be prepared later in the year to bless this document.
   c. Key points for the Board per Steve Faber: this process has already produced value in terms of ash processing and group SRC work. Wouldn’t have moved as quickly given it was part of RFI. WtE, MRF, SBP/SKL are interconnected and will see decisions points related to these facilities in the next 6-9 months that are part of moving toward the SBP. Not necessarily voting on the SBP, there are decisions points that will need to be addressed for the SBP to be successful.
d. Harvey confirming: DPW is interested to take that on despite no C/D responses. Composting want to offer public/private partnership land. Could get heat from AD/composting to greenhouses. Ag across the street, but just row crops at present.

e. DAR: Grouping C should be landfill development as 3rd option.

f. BILL: What will be the narrative if the DPW or the Board reject the SBP Master Plan? They will be comfortable by the time we bring it to them.

Schedule

August 2       DPW Board meeting/Draft Master Plan work session
Sustainable Business Park Master Plan

APPENDIX B:

Facilitation Guide for the Community Stakeholder Meetings
Kent County DPW—Focus Group Facilitation Guide

Date: Various
Location: Various
Timing: 105-120 minutes

Introduction (20 minutes)
- Greetings
- Ground rules
  - Focus Group – no wrong answers & we may not have all the answers
  - 2-minute rule
  - It’s OK to be silent
- Audio Recording
- Participant introductions
  - Name or nickname; Job title, Department; What they’re looking forward to next week
- Quick background: Video, Slide Deck, Handout

Mood (5 minutes)
Now I’d like to start our discussion by asking you to tell me a word or phrase that fills in this sentence: After learning a little bit about the sustainable business park concept, I would use the following word or phrase to describe it to a friend? What surprised you the most after learning more about Kent County DPW and the preliminary plans for the sustainable business park?

Six Hats Exercise (60 minutes)
Introduce Six Hats Exercise: Just to help guide discussion...

Yellow (sunny sky): As you think about this project from your perspective as a XYZ, what do you see as the benefits and value of this approach? What’s your optimistic viewpoint on the sustainable business park?

Black (gray sky): As you think about the project from your perspective as a XYZ, what do you see as the potential negative outcomes of the sustainable business park idea? Why might this not work? Where are the weaknesses in the plan so far?

Red Hat (intuition): What is your gut reaction or intuition telling you about this project?

White Hat (data): Looking at the information we have and past trends, what can we learn from it? Where do you feel we have gaps in our knowledge or understanding?

Green Hat (creativity): What are we missing? What big or small opportunity do you see from your unique perspective? Is there a problem out there that this project could help solve?

Open-Ended Discussion [10 minutes]
What do you think are the most critical elements of the sustainable business park that potential partners should know about? From your perspective, what’s the big question we need to answer?

What’s your main takeaway from this conversation today?

Wrap up [5 minutes]
Invite to stay engaged; Invite for steering committee; Process timeline
Sustainable Business Park Master Plan

APPENDIX C

Notes from Kent County SBP Stakeholder Meetings

Reimagining Waste in Kent County: Slides
<table>
<thead>
<tr>
<th>HAULER MEETING</th>
<th>SUMMARY</th>
<th>RED HAT (GUT CHECK): WORD/PHRASE</th>
<th>YELLOW HAT: BLUE/SKIES BENEFIT</th>
<th>GREY HAT: ISSUES/WEAKNESSES</th>
<th>WHITE HAT (DATA NEEDED?)</th>
<th>GREEN HAT (GROWTH/CREATIVITY WHAT'S MISSING?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dan Teitema, Organicycle</td>
<td>Curbside and commercial generate only. Turn into compost.</td>
<td>Forward thinking. Tough with the idea being so broad. Unclear right now.</td>
<td>Creating more opportunities; increased education/awareness; credibility</td>
<td>Government dictating price and ruining private business.</td>
<td>Behavior change needed.</td>
<td>Concur on glass solution. Beautification is important. Windmill look at AD. New generation is not thinking about cost. Need to embrace change. County is trying to align with the future.</td>
</tr>
<tr>
<td>Tom Mahoney, Republic Services</td>
<td>Landfill and recycling center in Muskegon. General Manager. Help to shape the future.</td>
<td>Visionary and/or pie in the sky. Can it make money? Cost to the consumer to make it viable?</td>
<td>Service being available to more people</td>
<td>Each additional truck is a cost. More collections means more trucks. Big portion want to do the right thing, but cost is an issue.</td>
<td>Enforcement needed. SKL takes material from many counties. Are we including other counties’ material?</td>
<td>Holland DWP is bringing trails into it. Tie in the beautiful landscape. SS (hopeful recycling), C&amp;D, collection of organics and processing. Furniture people are already on their way. Aluminum taken out of SS from bottle bill reduces value. Solar as an option?</td>
</tr>
<tr>
<td>Ben Pearson, Republic Services</td>
<td>Business unit manager. National look.</td>
<td>Anaheim, true dirty MRF. Willingness to pay. San Jose has organic processing, willing to pay. Seattle is an example too.</td>
<td>Avoided landfill development cost.</td>
<td>Willingness to pay. Volatile on both sides for the front and back. Single stream recycling is hard to get workers to stay. Taking out organics means you won’t product LFG because of reduced methane.</td>
<td>Not a bad idea. What does it mean to P&amp;L?</td>
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<tr>
<td>Steve Burman. Top Grade Aggregates</td>
<td>14 gravel pits around the County and Ottawa county. Yard waste comes from Republic. Large facility for compost operates in Ottawa.</td>
<td>Interesting.</td>
<td>Location benefits. Leaves/grass Backhaul opportunities.</td>
<td>Cost of land. How to control the material flow?</td>
<td>Combined drop off point would be great. Fairly successful with yard waste now. Facility needs to be operating when public is ready. Public has been involved to push ban to allow business to proceed.</td>
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<tr>
<td>Russ Boasman. Arrowaste and New Soil Commercial Compost Collection</td>
<td>Kent County and Ottawa County.</td>
<td>More compost and C&amp;D facilities</td>
<td>Consistent market. How to get rid of materials? Green Sword in China etc.</td>
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<td></td>
<td>Glass is very hard for single stream recyclers. Having a solution for glass would be great. Green houses. Is there a more central location?</td>
</tr>
<tr>
<td>Tom Hooker. Byron Center Commissioner</td>
<td>Byron Center Commissioner. Lives near landfill and “it’s important to me what happens there.”</td>
<td>Goal setting. Who is paying for it?</td>
<td>Public thinks it’s a good idea. Dumpsters for leaves/yard waste are hugely popular. Why not have something permanent? Does the public want to fund it?</td>
<td>Finding worthwhile market. Who picks it up, how to get a full truck load? Workfare not welfare. Can’t take yard waste to landfill. How to pay for it? Would want to ensure no pollution to the community.</td>
<td>County could say businesses can compete. Added fee on pop bottles for redemption—just focus on plastic?</td>
<td>If someone could figure out separation technology, companies could make billions.</td>
</tr>
<tr>
<td>John V. Tholen. Granger Waste Services</td>
<td>Green Valley waste was acquired by Granger. Interested to be part of the future for the county’s waste.</td>
<td>Concern about financials of word “sustainable”</td>
<td>Stewardship of materials is the right thing to do.</td>
<td>Concern about truck costs and collection needs. 3 trucks now—5 someday? Need to find the profitable venture. Government can pick the winners? Transportation and logistics—this is the extreme southern boundary of the county.</td>
<td>Pro forma? Wild guess at this point? Will I take it to the park or Republic’s landfill? What will County do to guarantee the flow—to private companies??</td>
<td>Are we really making something simple very complicated? Buy different trucks, educate customers now without definite plants?</td>
</tr>
<tr>
<td>Tonia Olson. Granger Waste Services</td>
<td>Ahead of its time. Wow, how bold. Practical risk mgmt. to prevent threat. Much is unknown from policy/regulatory perspective. Conflicted gut check.</td>
<td>Economic development would be an outcome</td>
<td>Landfill is designed to protect from environmental impacts. Resource Park materials mgmt. could be an issue. County control and competing with private sector? Industry trend is to more commingled, with energy. Type of workers needed are not available, not interested, or can’t pass federal driving record. Partially flow controlled mgmt. for waste. State has favored more regional look. Have they considered if this land would have greater value as another purpose?</td>
<td>Landfill Waste Sort data is good but neglects to factor in that the generator has control over the material as to whether it is recoverable or not. Landfill rates in MI are cheap it is said. Costs are covered as I, however. Other ways are more expensive because they are more labor intensive. Ordinances, overlay districts, sewer/water development to consider.</td>
<td></td>
<td>R&amp;D is needed. Need clarity of roles. If county doesn’t maintain ownership, it’s a critical distinction. Need comprehensive cost/benefit analysis for recycling both financially and environmentally to look at energy vs. commodities. Kudos for the County for the process.</td>
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PUBLIC MEETING

Dave Builtsma: I see where you are coming from: plywood, won’t make it to Habitat. Perfect Whirlpool tub Habitat wouldn’t take. Shingle recycling didn’t turn out. Hundreds of millions to be invested to create something like this. Stopped talking electronics because of cost recently. Even with old dumps, people were in there taking out metal. Has Fishbeck looked at what the interchanges, service road, infrastructure? They are looking at it now. Would require zoning and planning changes? Concrete and asphalt recycling now-can’t get enough of it. Start with putting a magnet in to take out the 6% of metal. Always issues with industrial recycling facilities. Used to raise hogs, nobody likes the smell, but everyone likes the bacon. Byron Center residents have been so beat up over the last years with the landfill, doesn’t matter that much.

Tony Gleason: no comment

Paul Smith: Will construction start at south and go north? Not determined yet.

REGIONAL MANUFACTURERS

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<tr>
<td>Drew Coppess, Stone Plastics</td>
<td>Teamwork required</td>
<td>Cradle to cradle for the consumer to think it through more.</td>
<td>Who will fill the role in the market?</td>
<td>Is Padnos involved in this? Why are they not jumping into this?</td>
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<tr>
<td>Devin O’Herron, Hayworth</td>
<td>We sort all our waste. Consumers don’t have space.</td>
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<td>Cascading flow of materials. Need to focus on financials.</td>
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<td>Kaitlyn Babcock, Steelcase</td>
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<td>A lot easier for us to use post-industrial waste. Post-consumer is very hard to use.</td>
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<tr>
<td>John Crosby, GRR Label</td>
<td>Progressive</td>
<td>$52 M in economic value in landfill- wow. What is the GHG impact?</td>
<td>Environmental impact of each company in the business park.</td>
<td>Hope to see explosion of start-ups and have student projects/University tie ins.</td>
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<td>Betsy Hernandez, Steelcase</td>
<td>What’s taken so long? Let’s get this moving! Should stay in the public eye.</td>
<td></td>
<td>Generational differences. Seniors, boomers are #1/#2. People think millennials are into recycling. None do.</td>
<td>$50 tons we incinerate. 300 tons/day goes to landfill. It’s never been just about the cost; we want to do the right thing.</td>
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<td>Celeste Wegener, Steelcase.</td>
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<td>Need to say this is an investment; shift the economics.</td>
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<td>Adam Brent, Cocoa</td>
<td>Fixable. Need an effective waste transfer station to segregate waste. Space at the point of generation for sorting: zoning/planning needs to change.</td>
<td>Getting organics out would make processing easier. 60+% is organics. San Francisco does it.</td>
<td>12 years left on landfill. If you could remove 50%, you would extend 12 years of the life. 75% of methane is lost in landfill capture.</td>
<td>Could I build a 60-acre compost facility in the spring? Yes. What are current agreements in place? How will waste water be treated? To Kent County wastewater treatment processing? Need to address for zoning.</td>
<td>Rebate program. Financial incentive. 10 cent deposit is very effective. Styrofoam is hard to handle.</td>
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<td>Blake Rodgers, Boxed Water is Better</td>
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<td>Have community events and have educational programs at the park.</td>
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<tr>
<td>Lisa Hull, Custer</td>
<td>Exciting</td>
<td>Carrot and stick idea. We have a big recycling program, but it costs us money. We don’t get paid for our recycling. How to make it attractive for us to want to do more? Other than social responsibility. Make everything I want to recycle have value. Having reuse/donation would be better if it were easier. Can’t always get to Habitat.</td>
<td>Get haulers to give customers local metrics on the impact of the waste diverted.</td>
<td>Get the kids involved to see their impact, also as people drive by. Billboard at park. Make it worth my while and make it easy. “This playground is funded by your recycling!”</td>
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<tr>
<td>Natalia Connelly, Custer</td>
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<td>Thoughtful use of materials for building materials at the park and landscape.</td>
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## Summary Matrix: Notes from Community Stakeholder Meetings: November 14-16, 2017

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<tr>
<td>Alison Waske Sutter, City of Grand Rapids</td>
<td>Very innovative. Right region to do this. City of Grand Rapids is aligned. 2030 might not be realistic.</td>
<td>Out of sight, out of mind or GR residents. Environmental and economic benefits. Job opportunities. Could be a leader across the country. GHG mitigation; climate change impacts</td>
<td>Closed loop: the ultimate buyers of material is the biggest missing piece. Unless you have a knowing buyer, you won’t have the processing to produce the materials; More truck traffic? How does it impact roads/transportation?</td>
<td>Do we need to have customers sorting more or will it be mixed and sorted at a facility? What will it look like for homeowners and businesses? Changes in GHG emission impacts.</td>
<td>For assessing the goals/target, regional growth rate?</td>
<td>Food waste 30-40% needs to be addressed in the solution. Public Health research to understand the impact on health. Food production on-site? Make more landfill tours to get people to understand. Figure out how to brew onsite!</td>
</tr>
<tr>
<td>Dan Power, City of Walker</td>
<td>I wonder if this much change this quickly requires a psychological shift.</td>
<td>Using land for storing or mini storage, doesn’t produce as many jobs.</td>
<td>Prices of raw materials that go up &amp; down. Cost to GR for “free” recycling. This is a public service. Will we have to subsidize private companies in the business park? Would be helpful to have some ideas of what could be in the park.</td>
<td></td>
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<td>Rachell Nagorsen, City of Walker</td>
<td>Makes sense. We have the material there. Untapped economic resource should start using it.</td>
<td>Out of sight, out of mind. Better to not use more land for landfill.</td>
<td></td>
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</tr>
<tr>
<td>Dick VanderMolen, Former Kent County Commissioner</td>
<td>Time to start. Urgency</td>
<td>Proud to be taking care of this.</td>
<td>This won’t be free. How can we help the community understand that the cost of this is worth it? Glass is useless. We pay to haul it from recycling center. Finding a way to put into asphalt? Do regulations need to change?</td>
<td>How do we impact Amazon etc. to change their practices?</td>
<td></td>
<td>Research Center. MSU. Van Andel Institute.</td>
</tr>
<tr>
<td>Katie Venechuk, MI Dept of Environmental Quality</td>
<td>Goals get people fired up. We have good, safe disposal. How do we approach this from a more holistic, preservation of the natural economy? Sustainable materials mgmt. is where the state is going too. Using this as a case study project that’s succeeding is key.</td>
<td>Much of the cost is SMM is the huge cost in transporting our materials. Having the processes closer to home, will allow for sustainable mgmt. As for education for students, this is a great learning experience for kids.</td>
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<td></td>
<td></td>
<td>Soil health. Need build it back up from organic components vs. synthetic fertilizer. Can we draw people in for a repair center, or retail site so they can see the rest of the park? Need to have public education component. Tie into Art Prize/community involvement.</td>
</tr>
</tbody>
</table>

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**Environmental footprint**—how can we not make it a cement paradise? Make more green.

Benchmarking with other cities.

Beneficial reuse of wood waste. Think of Patagonia and others. Beneficial reuse would make me choose the park.

Making the landfill more visible is important to making this happen. Holland energy park has great exhibit; this park needs it too.

Developing the market is a challenge. Security is a challenge with pharmaceutical products.

Quantify feedstock and market value. My GR City Points maybe but didn’t work well.

We make building blocks out of ash in Europe. Depackaging is an issue for digesters to not be able to take plastics. Depackaging needed. Use social media to make people aware of what goes on. Is there a focus on waste prevention regarding convenience? Need to look at the market drivers of private landfills. Think of universities as partners going forward.

Carrot and stick. Restaurants/food producer—you need to start separating onsite. Tough to do.

Logistics

Farms use of compost. Furniture disassembly. How can reuse mylar or recycle it? Public recognition for being part of the park.

**MUNICIPAL OFFICIALS**

- Dick Vandermolen, Former Kent County Commissioner
- Dan Power, City of Walker
- Katie Venechuk, MI Dept of Environmental Quality
- Rachell Nagorsen, City of Walker
- Alison Waske Sutter, City of Grand Rapids

**Summary**

- GBB/Kent County Resource Park: C17031
- Summary of GBB/Kent County Resource Park: C17031

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**Notes from Community Stakeholder Meetings: November 14-16, 2017**

- **Kris Spaulding**, **Brewery Vivant**: Ambitious. How is the recycling rate so low and it’s free and single stream?

  - Do we know what is residents vs. businesses?

  - More attractive to people if we do this.

  - Carrot and stick. Restaurants/food producer—you need to start separating onsite. Tough to do.

- **Heidi Frasure**, **Steelcase**: We are behind for not doing organics now.

  - With China Green Sword we can’t export as much as we could.

- **Christina Britton**, **Meijer**: Frustrating

  - Carrot is the value that’s going to the landfill currently. How can we make the value proposition less nebulous? Make the landfill more expensive? Very hard.

- **Brock Rodgers**, **Perrigo**: Inspiring

  - Developing the market is a challenge. Security is a challenge with pharmaceutical products.

- **Katie Venechuk**, **MI Dept of Environmental Quality**: Goals get people fired up. We have good, safe disposal. How do we approach this from a more holistic, preservation of the natural economy? Sustainable materials mgmt. is where the state is going too. Using this as a case study project that’s succeeding is key.

  - Much of the cost is SMM is the huge cost in transporting our materials. Having the processes closer to home, will allow for sustainable mgmt. As for education for students, this is a great learning experience for kids.

  - China Green Sword plus domestic limited markets makes this challenging. Having people to understand their part is important. How can we demonstrate success by having the portions that can be most successful first to get buy-in and more challenging aspects developed? Shift money conversation from superfund site development costs, C/P/C too so the costs don’t seem so high. True costs.

- **Rachell Nagorsen**, **City of Walker**: Makes sense. We have the material there. Untapped economic resource should start using it.

  - Out of sight, out of mind. Better to not use more land for landfill.

  - Prices of raw materials that go up & down. Cost to GR for “free” recycling. This is a public service. Will we have to subsidize private companies in the business park? Would be helpful to have some ideas of what could be in the park.

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- **Logistics**

  - Farms use of compost. Furniture disassembly. How can reuse mylar or recycle it? Public recognition for being part of the park.

---

**Yellow hat: Blue/skies Benefit**

- Using land for storing or mini storage, doesn’t produce as many jobs.

- Prices of raw materials that go up & down. Cost to GR for “free” recycling. This is a public service. Will we have to subsidize private companies in the business park? Would be helpful to have some ideas of what could be in the park.

- How do we impact Amazon etc. to change their practices?

- Research Center. MSU. Van Andel Institute.

**Grey hat: Issues/weaknesses**

- Closed loop: the ultimate buyers of material is the biggest missing piece. Unless you have a knowing buyer, you won’t have the processing to produce the materials; More truck traffic? How does it impact roads/transportation?

- This won’t be free. How can we help the community understand that the cost of this is worth it? Glass is useless. We pay to haul it from recycling center. Finding a way to put into asphalt? Do regulations need to change?

- How do we impact Amazon etc. to change their practices?

- Research Center. MSU. Van Andel Institute.

**White hat (data needed?)**

- Do we need to have customers sorting more or will it be mixed and sorted at a facility? What will it look like for homeowners and businesses? Changes in GHG emission impacts.

- How do we impact Amazon etc. to change their practices?

- Research Center. MSU. Van Andel Institute.

**Green hat (growth/creativity what’s missing?)**

- Food waste 30-40% needs to be addressed in the solution. Public Health research to understand the impact on health. Food production on-site? Make more landfill tours to get people to understand. Figure out how to brew onsite!

- Research Center. MSU. Van Andel Institute.

- Soil health. Need build it back up from organic components vs. synthetic fertilizer. Can we draw people in for a repair center, or retail site so they can see the rest of the park? Need to have public education component. Tie into Art Prize/community involvement.
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<tbody>
<tr>
<td>Rick Chapla, The Right Place</td>
<td>Way too easy to be out of sight, out of mind for residential waste. Lazy behavior is there, but the attitude is there for change too. Expectation that we need to do better. Public is hungry.</td>
<td>Public-private partnership is key here. If just County, economic development wouldn’t be at the table. For Amazon site selectors, 2 pages of 7 requested pages were representation of innovation in sustainability. 5 years ago this was not the case.</td>
<td>If the economics aren’t working, we haven’t done our job. What is the cost if we don’t do anything? Cannot assume that Allegan County thinks this is the best plan. Need to talk to them. Can’t assume that politics are aligned.</td>
<td>We can create wealth in the region from the exports of the park. Documenting the associated other opportunities—the other landfills in the county. Wolverine provides a good example of issues; this is an alternative.</td>
<td>Not just Kent County. Have to set it up on a regional basis. Muskegon, Oceana should be right behind. 2035, 2040. Regional leadership. Adjacent counties to buy in. Not just public sector driven. “I’m incorporating and selling shares.” Need to have the ag materials and components.</td>
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<tr>
<td>Joshua Lunger, Grand Rapids Area Chamber of Commerce</td>
<td>Incentivize with expanding curbside. Bi-weekly recycling now in GR. How can we get more residents in curbside program? What have other programs been around the country. If the market was there, there would already be businesses doing it.</td>
<td>Want to have this presented to our members. Kent County investing in Allegan County? Policy considerations, how to get the business community to lead?</td>
<td>Cost-benefit of WTE mining for metal.</td>
<td>What’s the idea of cost and how will it be paid for?</td>
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<tr>
<td>Steve Achram, Wolverine Building Group</td>
<td>To address root cause, consumption, not diversion. PAYT in GR is more watered down. Policy needs to be there. Should weigh the container for garbage. On the residuals, need integrated waste conversion, C&amp;D, organics.</td>
<td>Triple bottom line, all benefit. No downside. Kids know it. Win-win-win.</td>
<td>What happens in 2029? Landfill permitting seems like it needs to start now as a back-up. Investors only want to see 10-20% ROI.</td>
<td>What is the C&amp;D waste composition?</td>
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<td>Rachel Scott, Rockford Construction</td>
<td>Sadening and overwhelming. People are called to action when there is a personal financial benefit or penalty.</td>
<td>Corporate brand image. Millennials are looking for it. Similar to increasing diversity in the workplace.</td>
<td>So what? What if we don’t do this? Carbon emissions, etc. need to be presented. Show the kids of the future and the impact. Slower ROI but will build. Include case studies of what good looks like.</td>
<td>(Drew a picture on white board). All haulers come in. Dirty MRF (MWPF) processes waste. Glass, plastic, metal, paper, organics. Rest goes to fuel/energy.</td>
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<tr>
<td>Kent Miller, Mercy Health Partners</td>
<td>This is not unique to us. Issue is nationwide.</td>
<td>Much contaminated recycling in home and hospitals. Need technology to clean things.</td>
<td>Need to have location to take things that need to be repaired. European model of repair/salvage.</td>
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<td>Sarah Chartier, Spectrum Health</td>
<td>Curious if the intent is to shift the culture of our residents or create easy solutions such as single stream with focus on processing? Given our past open burning, what is the health impact of what will be?</td>
<td>Vale’s objective is zero footprint by 2020. We can do this.</td>
<td>Organics world: Business directives; residential implementation. I see a chasm.</td>
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<tr>
<td>Name</td>
<td>Summary</td>
<td>Questions</td>
<td>Implications</td>
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<td>Tom Hyde, Habitat for Humanity</td>
<td>As a neighbor of the landfill, I see that not getting it bigger is my interest. Materials Exchange center idea seems great.</td>
<td>Would like to see materials for houses we could turn into structures for people in Kent County. Also, real living classroom to learn and show business incubation.</td>
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<td>Roger Peterman,</td>
<td>A great job has already been done; how can we progress past what we have already done? Is the county going to embrace the marketing required for this?</td>
<td>Does this require a large amount of residential buy-in? Given that people throw away 10 cent cans now, how can we create incentives?</td>
<td>It's a challenge to motivate the public.</td>
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<tr>
<td>Habitat for Humanity</td>
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<td>Liam Considine,</td>
<td>Excited. Seems like the right thing to do. What needs to happen to get it done? Alternative sounds so much worse.</td>
<td>Make a more distributed impact in the park, how to do you feel its existence in the other part of the community?</td>
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<tr>
<td>Citizens’ Climate Lobby</td>
<td>Looking for this to dispel the issues around recycling. Getting people engaged in the narrative of a circular economy. Will break us out of old thinking.</td>
<td>What would make it easier from the constituency point of view? What signals from the community need to be come up? Anglers, people of faith, business leaders?</td>
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<td>John Considine,</td>
<td>Kent County Sustainability Plan? There isn't one.</td>
<td>How can this be a bi-partisan solution? Externals to be considered now.</td>
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<tr>
<td>Citizens’ Climate Lobby</td>
<td>200 acres sounds like a big piece of property. Seems like you will run out of room.</td>
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<td>Tom Purkiss, Ananeoo Solutions</td>
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<tr>
<td>Kari Bliss, PADNOS</td>
<td>I like the educational opportunity that it provides. Supply chain of recycling. Nowhere to get all the information.</td>
<td>Transportation is always an issue given the economics. Small generators and the cost to haul the material from A to B exceeds the value of recycling the material. Raise the cost of landfilling has an impact on manufacturing in the area.</td>
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<tr>
<td>Bruce Odom, Odom Reusable Building Materials</td>
<td>Thought the flyover video was very powerful. Felt good to be living in this county that is setting such an ambitious goal.</td>
<td>Access to materials that you can't buy anymore. Salvage of materials which we couldn't access.</td>
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<tr>
<td>Kristen Trovillion,</td>
<td>Have primary targets been identified? Restaurants/organics, building?</td>
<td>Education starting in 3rd, 4th, 5th graders. C&amp;D contractors need to be at this table. They have very specific machinery to destroy resources and move them as fast as possible to the landfill. Need to help them with the conversation.</td>
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<tr>
<td>Grand Rapids Public Schools</td>
<td>Business startups would be a great aspect and make it more cost effective for people to do the right thing as the market grows.</td>
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<td>Jason Kehr, Valley City</td>
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<tr>
<td>Electronic Recycling</td>
<td>County doesn't get enough credit for creating a residential and small business recycling in West Michigan. GR gets credit for being green but the investment the County made in the recycling center for example,</td>
<td>Powers that be have reached consensus that all resources should be geared to equity, tie into this. GVasu investing in renewable energy in Muskegon; could have an issue with location of an innovation center at the park.</td>
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<td>Daniel Schoonmaker,</td>
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<tr>
<td>WMSBF</td>
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Summary Matrix: Notes from Community Stakeholder Meetings: November 14-16, 2017
### Summary Matrix: Notes from Community Stakeholder Meetings: November 14-16, 2017

| GB/Kent County Resource Park: C17031 | could be leveraged. C&D is 20%-30% of reported volumes. Wood, drywall. The location proposed here will be a central location after 30 years of urban sprawl. | circular economy: think of water bottle and getting it to Cascade? There needs to be an intermediate processor who can create material that a business like Cascade could use. |
| Deborah Steketee PhD, Aquinas College Professor of Sustainable Business, Chair Department of Sustainable Business | Complexity of the situation with China Green Sword. How will household make this work? Very complex system. Does that put the skids on the imagination for what’s possible? | Some kind of artist studios. Connecting to Art Prize. It’s part of who we are in this region. Waste = food concept needs to be advanced. Took students to Green Sustainability Center in Chicago. It was fantastic and was a destination. This could be too. Landfill in NJ where Terracycle got its start is a model. |
| Norman Christopher, Grand Valley State University | Learning curve. Determine the inputs and outputs to focus the innovation. Start kids seeing it early. What role do we all play? | GV has 3-megawatt system now. Big learning opportunity. Tell more stories in the space. Give other examples some airtime. |
| Hector Angus, Beacon Recycling, Inc. | is there a model successful project? | Amazing amount of knowledge that we could create with this. Repository of things that work here. Many communities will be looking at this. Tactical side of all of what works. |

### NEXT STEPS:

- Hauler meetings one-on-one
- Municipal meetings for Councils, including Allegan County
- Government working team meeting at City of Grand Rapids
- Chamber of Commerce presentation
- Develop stories for the presentation and website
Reimagining Waste in Kent County

finding opportunity in waste

2020
REIMAGINETRASH.ORG
2030

Overview

Where we’ve been

Where we’re at

Where we’re going
Our Path Here: Open Dumping in the Grand River (pre-1895)

Our Path Here: Coal-fired Garbage Burner (1897)
Our Path Here: Piggeries (early 1900s)

Our Path Here: Dumps Featuring Open Burning
29 open dumps by 1965
**Today:** An Integrated Solid Waste Management System including

- Transfer Station
- Household Hazardous Waste Centers
- Recycling Drop-Off Stations

Growth from Innovation

- Regional Manufacturing Center
- Regional Medical Center
- Regional Financial Center
- Regional Education Center
- Sustainability Hub
- Green Building Center
Landfill Characterization Study (WMSBF)

Total Value of W. Michigan MSW Material Disposed ($)

- Paper: $11,702,116
- Textiles: $3,156,777
- Plastic: $20,270,206
- Metal: $15,057,855
- MI Deposit: $1,541,993


Zero Waste Study

W MI is an international center for office furniture manufacturing which generates high volumes of engineered wood waste.
Zero Waste Study

Current Disposal, Recycling and Composting

<table>
<thead>
<tr>
<th>Facility</th>
<th>Tons per Month</th>
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<tbody>
<tr>
<td>Disposal</td>
<td>672.65</td>
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<tr>
<td>Coopersville</td>
<td>409.70</td>
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<tr>
<td>(Ottawa County</td>
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<tr>
<td>Farms Landfill</td>
<td></td>
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<tr>
<td>WWTP-Landfill</td>
<td>224.45</td>
</tr>
<tr>
<td>Other</td>
<td>38.50</td>
</tr>
<tr>
<td>Waste to Energy</td>
<td>5,299.60</td>
</tr>
<tr>
<td>WTE-Grand Rapids</td>
<td>183.00</td>
</tr>
<tr>
<td>WTE-Genessee</td>
<td>5,116.60</td>
</tr>
<tr>
<td>Recycling</td>
<td>917.62</td>
</tr>
<tr>
<td>Block Mfg.</td>
<td>42.00</td>
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<tr>
<td>Organycycle</td>
<td>11.75</td>
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<tr>
<td>Padnos</td>
<td>497.00</td>
</tr>
<tr>
<td>Yes</td>
<td>356.87</td>
</tr>
<tr>
<td>Compost</td>
<td>10.00</td>
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</table>
Zero Waste Study Conclusions

- There is significant interest for ZWL by responding industries and they have significant non-recyclable by-products with high BTU value.

- Non-MSW and high energy content nature of the industrial by-products make it a highly suitable fuel feedstocks for gasification technology that has lower emission volume profiles than the County WtE.

- Kent County’s interest in considering a resource recovery park can provide interesting opportunity to locate a ZWL gasification project as a base tenant and supplemental recovery operations.

- There is adequate tonnages to support a combination of on-site WtE, a third line at the County WtE, and a greenfield gasification facility.

2016 Landfill Reports

- Kent County: 1,882,611 cubic yards

- 2 Big Houses

- OR

- 8 Van Andel Arenas
2016 Landfill Reports
Add in surrounding three counties:
**nearly 4 million cubic yards**

**The Vision:** A Paradigm Shift

2020
2030

REIMAGINETRASH.ORG
The Vision: A Circular Economy in West Michigan

The Vision: Landfilling as a Last Resort

Sustainable Business Park Will Connect Potential With Opportunity:

- Construction & Demolition Debris Processing
- Composting
- Energy Technology
- Materials-specific Processing
- Business Incubator
- One-to-One Materials Exchange
- Research

Total Value of W. Michigan MSW Material Disposed ($)

- Paper $11,702,116
- Textiles $3,156,777
- Metal $15,057,855
- Plastic $20,270,206
- MI Deposit $1,841,993
Instead of using these 200 acres for future landfill, we will develop a Sustainable Business Park that:

- Lays the **critical infrastructure** to support a regional circular economy
- Leverages **private sector development**
- **Attracts business** to localize the entire recycling or conversion process
- Preserves **open space**
- Expands **research**
- Generates and uses **renewable energy**
- Begins to **close the loop** in West Michigan
The Planning Partners:

- Waste Quantity & Characterization Study
- Market Analysis
- Technology Evaluation
- Infrastructure & Zoning
- Site Plans
- Stakeholder Engagement
- Communications
- Funding Sources & Mechanisms

The Planning Process:

**2017/18 Planning Timeline**

- November 2017: Kickoff
- November 2017: Stakeholder Meetings
- July 2018: Approval Process
The Future:

Instead of using these 200 acres for future landfill, we will develop a Sustainable Business Park that:

- Lays the **critical infrastructure** to support a regional circular economy
- Leverages **private sector development**
- **Attracts business** to localize the entire recycling or conversion process
- Preserves **open space**
- Expands **research**
- Generates and uses **renewable energy**
- Begins to **close the loop** in West Michigan

Examples: Waste Conversion - Organics

- **Biofuels**
- **Compost**
Examples: Energy

Solar  Landfill Gas –to-Energy  Bio-Digester

Examples: Waste Conversion

Ash Bricks  Plastic Flake  Wood
Examples: Salvage

- Corrugated Cardboard
- Valuable Metals
- Electronics

Examples: Potential Partners

- Education
- Manufacturers
- Startups
Sustainable Business Park Master Plan

APPENDIX D

Kent County DPW Waste Reduction Infographic
KENT COUNTY
DEPARTMENT OF PUBLIC WORKS

PROCESSES OVER
525,000 TONS
= 1 BILLION LBS
OF WASTE EACH YEAR

WHAT WE DO NOW
6% METAL
2% GLASS
13% PLASTIC
22% PAPER
23% OTHER
34% ORGANICS

WHAT WE COULD BE DOING

OUR GOAL: REDUCE LANDFILL WASTE
20% by 2020 | 90% by 2030

200-ACRE SUSTAINABLE BUSINESS PARK

COMPOST
- soil for farms

WASTE CONVERSION
- plastic flake | aggregate

REUSE & REPURPOSE
- salvage

ENERGY RECOVERY
- biogas | electricity | fuel pellets | biofuels

Potential Public, Private and Nonprofit Partners of the Proposed Sustainable Business Park
- Manufacturers
- Agriculture
- Education & Research
- Recreation & Health
- Startups & Entrepreneurs

~75% of KENT COUNTY waste can be:

Reused
Recycled
Converted

ONLY 6-8% IS RECYCLED
The Kent County Department of Public Works (DPW) wants Kent County to be a leader in sustainability in Michigan and across the nation. That’s why we are creating a plan to expand recycling and waste recovery, which will protect our air, land and Great Lakes.

Each day, thousands of pounds of trash are dumped into area landfills.

Only 6-8% of the waste generated in Kent County is recycled.

We believe we can do better.

The Kent County DPW has set a bold goal: Reduce landfill waste by 90% by 2030.

A key part of achieving this goal is building a SUSTAINABLE BUSINESS PARK ON 200 ACRES of land adjacent to the South Kent Landfill in Byron Center.

We have an opportunity to put West Michigan on the map as a leader in recycling and waste reduction and, together, we’ll protect our air, land and Great Lakes.

THE OPPORTUNITY:
Attract new businesses and investment to Kent County while accelerating our progress toward our sustainability goals.

Waste materials that would otherwise be dumped into area landfills would be converted into usable products. A variety of entities who need access to raw materials could tap into these reclaimed or converted materials and transform them into new products:

- Complementary Businesses
- Entrepreneurs
- Startups

The park has tremendous potential for preserving open space, expanding research and using renewable energy to power operations.

For more information about the sustainable business park plan and to stay connected, visit REIMAGINETRASH.ORG

printed on recycled paper
Sustainable Business Park Master Plan

APPENDIX E

Media Roundup: Sustainable Business Park

Media Roundup: Sustainable Business Park
As population increases so does waste, filling up landfills at a faster rate. One solution to this problem is to rethink the old ways of managing solid waste.

The Kent County Department of Public Works is doing just that. The County has decided to take land designated for a future landfill and use it instead for a "sustainable business park." The park will house companies and technology that reuse, repurpose, or convert solid waste, generating economic development while saving landfill space.

Dar Baas, the director of the Kent County Department of Public Works, joined Stateside to discuss the origins of the idea, the amount of usable material currently in the county’s landfill, the potential technologies to repurpose or convert that waste, and next steps for implementation of the idea.
23 respond to Kent County's call for 'sustainable' garbage proposals

MLIVE: Grand Rapids Press: April 30, 2018


GRAND RAPIDS, MI -- Kent County officials did not know quite what to expect when they put out a request for information in connection with an innovative idea for a sustainable business park in the shadow of the county's main landfill.

By an April 26 submission deadline, the county had received 23 responses from companies and institutions based all over the world.

The responses received take into account each firm's area of expertise and how that could be applied to the types of materials the county hopes to divert from landfills, Kent County Department of Public Works spokesperson Kristen Wieland said.

"We're really pleased with 23 responses," Wieland said. "And we're pleased that they weren't all exceptionally narrowly focused."

The general idea from Kent County Public Works Director Dar Baas was to lure companies and technologies capable of finding usable value within material that would otherwise be added to the growing pile of garbage at South Kent Landfill.

Firms sought for sustainable business park near Kent County landfill
Kent County is looking for businesses interested in setting shop on the 200 acres it owns just south of South Kent Landfill.

It's part of a lofty goal to divert 90 percent of the county's trash from landfills by the year 2030.
That would be no small feat, especially considering that the volume of garbage being added to the landfill has steadily increased in recent years, growing from 692,529 cubic yards landfilled in 2013 to more than 1 million cubic yards in 2017.

But Baas is hopeful that private business might help Kent County reach that goal, especially considering data that suggest the majority of the material brought to the landfill still has value. A preliminary examination of South Kent Landfill estimates 75 percent of the nearly 500,000 tons received each year could be reused, recycled or converted into new materials.

A 2016 study by the West Michigan Sustainable Business Forum revealed 35 percent of solid waste in the region is organic material, 21 percent is paper, 14 percent is plastic and another 4 percent is metal. The total value of material thrown away that could be reused is estimated at $52 million.

The request for information issued by the county earlier this year asked interested companies to present their qualifications and specifics about their innovative waste processing and conversion technologies.

The county's request will not result in a single contract with a winning bidder, Wieland explained. Instead, the proposals will be reviewed, with the potential for multiple ideas chosen for implementation, she said.

Firms probe Kent County on request for garbage-fueled innovations

Those interested in the county's unique proposal got an up-close look at current waste management facilities.

If ultimately selected, firms could eventually set up shop somewhere on about 200 acres of property straddling the Kent/Allegan county line -- land originally set aside for future landfill expansion.

Instead, Baas envisions a "sustainable business park" there, filled with companies that process construction and demolition debris, compost organic material or those that engage in gasification or some other type of alternative energy conversion, turning organic and fossil fuel-based compounds back into a usable fuel source.

"It could very well be a combination of those things," Wieland said.

Many of the companies and organizations interested in the project participated in a March 28 teleconference and tour of Kent County's facilities, including the acreage near South Kent Landfill.

A tab sheet provided by Kent County's purchasing division shows submissions were received from 23 different companies.
Some -- like Entsorga, Kenerkem, Inashco and Synova -- are international companies based overseas. The list also included companies headquartered out of state, like EcoHub, Lab USA and Pure Recovery Group, and Michigan companies including Holland-based Cocoa Corporation, Odom RE-USE Co and Zeeland-based Spurt Industries. Michigan Technological University is also listed among a list of mostly for-profit enterprises responding to the county's request.

Now that it has 23 proposals in hand, Kent County plans to convene a stakeholder review committee made up of local officials, businesses, non-profits, developers and citizens to review the responses.

Wieland said county officials will draw on the expertise of that group as it develops a master plan for the site.

"To make sure we're considering what the community would say about having these types of companies in our backyard," she said.

Kent County officials previously awarded a contract to develop a plan for the acreage just south of the current landfill to Gershman, Brickner & Bratton Inc., a Virginia-based consulting firm specializing in the recycling and solid waste industry. The firm is already reviewing the submissions received by last week's deadline and analyzing each as well as how multiple proposals might work in tandem.

"They will take what all these companies have submitted and give us an idea as a community of what that picture would look like," Wieland said.

The group plans to meet for the first time next week, with monthly progress goals leading to some sort of recommendation later this year, she said.

"By the end of the summer, we anticipate having a final draft to bring to the Board of Public Works," Wieland said. "Based on what they say we'll move either to another point of approval or go back and make some edits."

In the meantime, a report from the Michigan Department of Environmental Quality shows the volume of waste buried at South Kent and other landfill in Kent County has continued to increase. Total waste landfilled in the county increased from 1.8 million cubic yards in 2016 to 2.1 million cubic yards in 2017.

Sustainable business park planned in shadow of Kent County landfill
The planning process is underway for the more than 200-acre property, located just south of the South Kent Landfill near the Kent-Allegan county line.

Despite efforts to promote recycling and reduce landfilled waste, about three quarters of what is collected at curbsides still ends up in the landfill, according to a 2016 county report. When you add in the garbage burned at the county's Waste to Energy facility, that proportion decreases further.
Currently, about 6-8 percent of what is thrown away in Kent County ends up being recycled.

The pace of work on the undertaking is flexible and could be adjusted based on response from the larger community, she said.

"If the community is ready to advance this, then DPW is," Wieland said.

**RFI for Kent County, Mich. 'sustainable business park' draws many responses**

*Waste Dive: May 2, 2018*


**Dive Brief:**
- Twenty-three companies from around the globe responded to a request for information issued by Kent County, Mich. earlier this year about building a "sustainable business park" adjacent to the county's existing landfill, according to MLive.

- The RFI asked for "active technology/equipment suppliers, project developers, technology developers, and end-market users" to submit proposals that could help advance the county's "vision of a Circular Economy." Among the 23 respondents were EcoHub, Emterra Environmental, Enerkem, Entsorga, Lab USA, Michigan Technological University, Toterra and Plexus Recycling Technologies.

- MLive reports the proposals will now be reviewed by a stakeholder committee, with consulting from Gershman, Brickner & Bratton, and multiple firms could be selected to bring their waste processing and conversion technologies to the business park.
In some ways, the success of a recycling program depends on outreach to residents. In other ways, the key is sortation efficiency and technology.

Officials in Kent County, Mich. are making strides on both fronts.

“We are developing an outreach campaign to help increase the regional recycling rate, improve the quality of materials we are receiving and to further showcase the economic importance of recycling to our region and beyond,” said Nic VanderVinne, resource recovery and recycling manager at the Kent County Department of Public Works.

The effort comes shortly after a $1.5 million upgrade of the county’s materials recovery facility, the Kent County Recycling and Education Center. The project, which was completed last fall, brought in a new OCC screen and an optical sorter. The new CP screen is allowing the facility to sort OCC in larger volumes more efficiently, and the MSS optical sorter is targeting cartons.

The 56,000-square-foot MRF, located on Wealthy Street Southwest in Grand Rapids, got a little financial assistance to help with the optical sorter: The Carton Council in mid-2017 provided a grant to help buy the equipment, which allowed the program to begin accepting cartons. The MRF, originally built by RRT and Hustler, spent $700,000 to add a Harris Centurion Baler. All told, the equipment and staff handle about 18 to 20 tons per day. About 70 percent of the volume is fiber, with the remainder commingled containers.

Single-stream material lands on the tip floor from residential curbsides in Kent County and nine surrounding counties, as well as via a handful of drop-off stations operated by the county and private haulers, VanderVinne said. In addition, the facility receives commercial OCC. Outside of the MRF’s sorting operations, the facility provides educational opportunities for the public. The LEED-certified facility sports a 5,000-square-foot education center with an observation deck. From the platform, more than 5,000 visitors a year watch material separation take place.

“Museum-quality exhibits will be installed in the summer of 2018 to help explain the sorting process in our facility, explain how recyclables get from the curb into a new product and describe the importance of recycling to the economy,” VanderVinne said.

The biggest issue the facility is dealing with is declining values for hard-to-market plastics and mixed paper, issues programs across North America are facing after China’s began restricting recyclables imports in 2017.
Kent County Recycling and Education Center is a critical part of helping the county achieve its goal of reducing material headed to landfill by 20 percent by 2020 and 90 percent by 2030, VanderVinne said. At the moment, the county recycling rate is only 8 to 10 percent. Another important step is maximizing the effectiveness of a waste-to-energy facility run by the county. And, by the end of this year, the Department of Public Works plans to complete a master plan for a Sustainable Business Park to be built on 200 acres originally set aside for landfill expansion. There, manufacturers would create new products from recycled materials.

The Kent County Recycling and Education Center employs 12 full-time county staff and 18 contract workers, who work the sorting line. They work on one 10-hour shift six days a week.

Kent County issues RFI for sustainable business park

Grand Rapids Business Journal: March 8, 2018


Kent County is reaching out to companies to participate in a large-scale waste management project.

The Kent County Department of Public Works, or DPW, has issued a request for information, or RFI, for potential tenants and their complementary technologies for its Sustainable Business Park project.

The park will sit on 200 acres of land adjacent to the South Kent Landfill in Byron Center. The official address hasn’t been determined, since the project will likely include roadway upgrades and the addition of new roads to access various businesses in the park.

The deadline for companies to respond to the RFI is April 26.

“We set a bold goal of diverting 90 percent of trash from the South Kent Landfill by 2030, and building the Sustainable Business Park is essential to reaching that goal,” said Dar Baas, director, Kent County DPW.

Ownership of the park hasn’t been determined. The DPW expects to maintain ownership of the property and enter long-term leases with tenants, but the RFI does ask respondents to identify ownership scenarios desirable to them.
The RFI asks companies to present their qualifications and waste-processing and conversion technologies.

Any technology or equipment suppliers, project developers, technology developers and end-market users that desire to design, build, finance, own or operate facilities in the Sustainable Business Park should apply.

The RFI cites a live teleconference on March 28, where respondents can ask questions about the process and project, which will be followed by a tour of existing DPW facilities and the site of the Sustainable Business Park.

After the response period closes, a stakeholder review committee made up of local officials, businesses, nonprofits, developers and citizens will review responses.

Kent County had a steady increase in the amount of waste buried in landfills over the past year, according to an annual report by the Michigan Department of Environmental Quality. Waste buried in landfills increased from 1.8-million cubic yards in 2016 to 2.1-million cubic yards in 2017.

Building the Sustainable Business Park is the DPW’s solution to decreasing the growing amount of solid waste buried in landfills.

Kent County DPW processes more than 1-billion pounds of waste each year and estimates 75 percent of that waste could be reused, recycled or converted. Currently, only 6 to 8 percent of waste is recycled.

People can visit the county purchasing division's website and click the "bid opportunities" button on the left column to access the RFI.
Kent County Department of Public Works issues request for information

The Michigan department is requesting information for potential tenants and technologies for its planned Sustainable Business Park.

Waste Today:  March 5, 2018


Gershman, Brickner & Bratton Inc. (GBB), McLean, Virginia, has announced the Kent County, Michigan, Department of Public Works (DPW) has issued a request for information (RFI) for potential future tenants and complementary technologies for the Sustainable Business Park planned on 200 acres adjacent to the South Kent Landfill. The RFI can help identify companies that want to be part of the Sustainable Business Park and is included as part of the master planning process that will determine the necessary improvements, costs, funding sources and implementation schedule for the project. The request is available to view here.

"We set a bold goal of diverting 90 percent of trash from the South Kent Landfill by 2030 and building a sustainable business park is essential to reaching that goal," Dar Baas, director of the Kent County DPW, says. "We are sending a request for information to organizations, businesses, technology developers, startups and nonprofits across the country to inform our master plan and continue progress toward our economic and environmental goals and advance our vision for a circular economy."

As a planning partner for this innovative Sustainable Business Park, GBB is leading a team to conduct stakeholders’ meetings; perform waste stream and market analyses; evaluate technologies; develop a master plan for the design and construction of necessary public infrastructure; research funding sources; and evaluate how the services provided by the Sustainable Business Park tenants might interact with Kent County's existing waste management infrastructure.

The RFI asks companies that may want to develop a project in the Sustainable Business Park to present qualifications and their waste processing and conversion technologies. Any technology or equipment suppliers, project developers, technology developers and end-market users that desire to design, build, finance, own or operate facilities in the Sustainable Business Park should apply.

The deadline for responding to the RFI is April 26. The RFI includes an opportunity for interested parties to participate in a live teleconference on March 28 to ask questions about the process and project, which will be followed by a tour of existing DPW facilities and the site of
the future Sustainable Business Park. After the response period closes, a stakeholder review committee made up of local officials, businesses, nonprofits, developers and citizens will review responses and include information from selected respondents in the park's master plan.

"We anticipate responses from a wide variety of businesses, organizations and developers working in waste recovery and related industries and look forward to their input," Jennifer Porter, GBB senior project manager, says. "The proximity of the Sustainable Business Park to the South Kent Landfill means it is positioned to host a variety of complementary businesses that could convert waste materials into usable products, like fuel pellets, plastic beads, textiles and more."

According to an annual report by the Michigan Department of Environmental Quality (DEQ), Kent County had a steady increase in the amount of waste buried in landfills over the past year. Waste buried in landfills increased from 1.8 million cubic yards in 2016 to 2.1 million cubic yards in 2017. Building a Sustainable Business Park to transition away from landfilling is Kent County DPW's solution to decreasing the growing amount of solid waste buried in landfills. Kent County DPW processes more than 1 billion pounds of waste each year and estimates 75 percent of that waste could be reused, recycled or converted. Currently, only 6 to 8 percent of waste is recycled.

"Instead of increasing the amount of trash buried in landfills each year, we should be looking at alternatives to landfilling waste, and the Kent County DPW's Sustainable Business Park is a step in the right direction toward doing just that," Rick Chapla, vice president of strategic initiatives at The Right Place, a Grand Rapids, Michigan-based private nonprofit economic development organization, says. "Rather than sticking with old, outdated practices for waste management, the Kent County DPW is taking a new, innovative approach to economic development in our region and The Right Place looks forward to partnering on this project."
The Department of Public Works (DPW) of Kent County, MI has issued a request for information and qualifications from companies interested in developing a new "Sustainable Business Park" on 200 acres next to its existing landfill.

The RFI specifically calls for companies "who present innovative waste processing, conversion, or beneficial technologies." Working with Gershman, Brickner & Bratton, the county is looking for "active technology/equipment suppliers, project developers, technology developers, and end-market users that desire to design, build, finance, own and/or operate facilities that will advance the DPW's economic and environmental goals and advance its vision of a Circular Economy." A teleconference will be held March 28 to answer questions and responses are due by April 26. Responses may be incorporated into the county's master plan, which will be presented to DPW in the summer with recommendations. Respondents will be notified about next steps in the fall.

Dive Brief:
• Kent County, MI will close its material recovery facility in Grand Rapids for three weeks starting Nov. 28 to make $1.5 million worth of upgrades, as reported by MLive. According to a release from the county's Department of Public Works, this will include a new corrugated cardboard screen, additional optical sorting equipment and a conveyor system refurbishment. Cartons will be accepted once the facility reopens Dec. 19. In the meantime, residents have been asked to store their recyclables if possible.

• This is part of a larger effort to reduce Kent's waste 20% by 2020 and 90% by 2030. Officials recently hosted a meeting to outline plans for a new "sustainable business park" next to the South Kent landfill, as reported by Michigan Radio and the Grand Rapids Business Journal. The county is working with Gershman, Brickner and Bratton (GBB) to develop details of what this might entail.

This process was announced in August and the county is aiming to issue a request for information in January. The goal is to finalize approvals in July 2018 and open the business park within five years. Kent County's landfill is currently projected to reach capacity by 2029.
Kent County, MI Plans 'Resource Park' To Reclaim Resources

ASSOCIATION OF OREGON RECYCLERS: February 28, 2018

http://www.publicnow.com/view/D40716F0208DFFD1FBBB2C4BE6794C3D21EC6662

Kent County, MI, in partnership with consultant firm Gershman, Brickner & Bratton, Inc. (GBB), is creating a 200-acre 'Resource Park' next to the South Kent landfill, which is estimated to reach its capacity before 2030. The County hopes to reclaim valuable resources buried in the landfill while meeting their goal to reduce waste and cut landfill usage by 20 percent by 2020, and 90 percent by 2030.

Based on the Reimagine Phoenix initiative, the project will involve 'a community of businesses, waste haulers, environmental groups, and residents who work with and benefit from the resource park.'

'Instead of expanding the landfill into that 200 acres, the county has set a goal to try to make it be better for the future, and try to recover more materials,' says Kristin Wieland, marketing and communications manager at the Kent County Department of Public Works. 'That's the idea. We're asking people to respond with their interests, and occupy those acres in terms of putting in processing equipment, utilizing advanced composting, or digestion technologies for organic, making plastic plates or other aggregates, we're opening it up to see what could come back from the market.

'You have advanced processing and recycling, converting materials into products, or repurposing them, basically diverting more materials from the waste stream,' Jennifer Porter, Solid Waste Management Consultant with GBB, says. 'This is a growing concept for resource management.'
Turning trash into money is going to take a community effort

February 8, 2018

There are a few spots in Kent County where all of time, space, and matter is devoured. Where evidence of our existence is compressed and consigned to the darkness under layers of soil and clay.

A landfill may be the closest thing earthbound humans may come to visiting a black hole, outside of the odd hadron collider, but they’re no less threatening.
"You stand at the base of one and you realize, there’s got to be a better way," says Gershman, Brickner & Bratton, Inc. (GBB) Solid Waste Management Consultant Jennifer Porter.

GBB is consulting with Kent County on a new Resource Park planned for 200 acres of land between Kent and Allegan counties, abutting the South Kent landfill, which is estimated to reach its capacity before 2030.

Untold millions of dollars in reclaimable resources are buried in those landfills every year, and likely more. There are yet no reliable ways to measure everything that winds up at the dump, outside of picking through the trash, but the county has estimates on what its residents are throwing away.

**What are we throwing away?**

A report by the West Michigan Sustainable Business Forum in 2016 looked at a number of landfills throughout the state, including those in West Michigan.

"They delivered a pretty comprehensive understanding of what is being put into general trash cans," says Kristin Wieland, marketing and communications manager at the Kent County Department of Public Works. "About 35 percent of what people put in their trash is organic material; food scraps, a little bit of plant debris, not outdoor waste. It could be better used at a facility like a composter, or some kind of organic processing plant."

Construction materials and industrial waste, meanwhile, make up a large percentage of the landfill substrata. They have not been measured as precisely as residential waste streams, but new initiatives to reclaim those resources, like those to be discussed at the Building Materials Reuse Association conference in September, are being prioritized.

"There are a lot of building materials and resources that are winding up in landfills," Wieland says. "People are actually talking about deconstructing things instead of just demolishing them. We’re looking at all the waste materials that come out of the building industry and reusing them is one of the ways to reduce that waste."

**Space is running out**

People are looking for ways to use resources smarter, and use them again. In building their homes, in building their products, in building their lives. They’re trying new ideas. Or, at least, recycled ones.

"We’re looking at identifying the specific waste streams that could be better used than in a landfill, and there are a lot of them," Wieland says.

Kent County has a vision to reduce waste and cut landfill usage by 20 percent by 2020, and 90 percent by 2030. Making that reduction will take some systemic changes, but DPW has an idea of where to start.
Plastic cast-offs from injection molding.

“If we look at plastics, we have a pretty good understanding of what people are still throwing away,” Wieland says. “There is a lot that people are throwing away that could be recycled, and should be recycled.”

Looking at plastics going into the trash that have no value for recycling, the county and GBB are hoping to invite specialized processors to lease a plot of the Resource Park, and get to work on returning that material to manufacturing.

Furniture manufacturers can use low-grade plastics produced by a reclamation plant for use in the inner structure of a cushion, for example. It’s simply a matter of separating that plastic from the landfill, cleaning it, converting it into a usable product, like pelletized plastic, and selling it to a manufacturer.

Apart from plastic, wood is another largely wasted resource, one that’s yet to be met with a worthy reclamation strategy.

“We actually don’t have a great handle on how much wood is going in," Wieland says. That’s partly because of construction and demolition operations that offload their waste en masse, without separating it into more useful streams.

But that doesn’t mean it can’t be.

“It could be a fuel for a type of technology, or it could be used as chipped wood for use in particle board,” Wieland says. “It's a matter of extracting it and putting it on a different path instead of mixing it all together and burying it.”

How can it be saved?

The Resource Park near the South Kent Landfill is one way Kent County hopes to reach its sustainability goals by 2030. But it wasn’t developed from scratch.

Even the idea was recycled, in a sense.

From one Cool City to the sunny Southwest, Porter and Wieland traveled to Phoenix, Ariz. to witness the future of sustainability. Phoenix’s approach to waste management, composting, and fostering a community of innovation around those responsibilities is nationally renown.

The proposed side for the South Kent Resource Park. Image courtesy Kent County.
Through the city’s Reimagine Phoenix initiative, a call for “entrepreneurs and innovators with market-ready and emerging technologies or manufacturing processes that transform trash into resources” was put out. The resulting RFPs brought a number of new businesses to the area who are now driving innovation in the industry. And many other public works departments, like those in Grand Rapids are taking notice.

The project started only two years ago, and already the results are clear. As of 2017, Phoenix measured its landfill diversion rate at 30 percent, well on the way towards 40 in another decade. And that’s where Kent County comes in.

Partnering with GBB, the county hopes to replicate the success seen in Phoenix.

The public was engaged with a series of questions in November 2017. Requests for proposals (RFP) are being drafted to attract respondents who would want to be tenants in the Resource Park. The ideal clients will be industrious, and willing to get their hands a little dirty.

**Recycling is a growing concept in resource management.**

“You have advanced processing and recycling, converting materials into products, or repurposing them, basically diverting more materials from the waste stream,” Porter says. “This is a growing concept for resource management, but there aren’t a lot of examples in the U.S.”

**Who is saving it?**

If the county project goes as planned, it will involve a community of businesses, waste haulers, environmental groups, and residents who work with and benefit from the resource park. The county has chosen 10 individuals from these areas to follow the process. Their report will be reviewed in April, and by the end of the summer, incorporated into a master plan for the park.

“Instead of expanding the landfill into that 200 acres, the county has set a goal to try to make it be better for the future, and try to recover more materials,” Wieland says. “That’s the idea. We’re asking people to respond with their interests, and occupy those acres in terms of putting in processing equipment, utilizing advanced composting, or digestion technologies for organic, making plastic plates or other aggregates, we’re opening it up to see what could come back from the market.”

Kent County currently collects several different sorts of recyclable materials at a recovery facility on Wealthy Street. The same goes for the South Kent landfill, and the Waste to Energy facility. Any of those waste streams could be something for a processing plant to capitalize on in the new Resource Park.

“I think it really is the future of how resource management is going to happen in this country,” Porter says.
Elsewhere in West Michigan, academia is concentrating on material conservation, as well. At the Kendall College of Art and Design, the Material ConneXion offers students a chance to browse more than 1050 samples from an archive of more than 7,000 materials in the Woodbridge building. And no shortage of innovation has come out of that address, where fashion and design students are learning to work with the properties of cutting edge synthetics and organic materials.

At Grand Valley State University, the Kennedy Hall of Engineering is fostering work on the various design trade-offs between modern sustainable materials used in manufacturing and construction.

“There is a growing trend in product design towards sustainability,” says GVSU Associate Professor, Product Design & Manufacturing Engineering Dr. Christopher Pung. “As people recognize that global warming is a problem sustainable design is a clear way to address the use of resources.”

**Dr. Christopher Pung**

In Europe, where the fee for waste disposal is much higher, trash diversion projects have created an economic boom for certain types “dirty work.” And, thanks to regional educational efforts emphasizing reuse over waste, much of the materials arrive preprocessed, and sorted, before they arrive at facilities based in resource parks like the one Kent County has set its sights on.

“I don’t think most people in Kent County think our waste management system is that sophisticated, but we’re really trying to do the right thing for the community,” Wieland says. “From Kent County’s perspective, constantly dumping a lot of valuable material into the landfill isn’t the right thing to do. This is a new approach, but it’s going the direction of sustainable materials management. It’s a global direction, and it’s in the best interest of Kent County to go in this direction.”

West Michigan has experienced heavy growth in the last few decades, and with that growth has come even more deposits into the local landfills. You don’t need a telescope to see how much of an impact they have on the area, maybe just a drive down U.S. 131.

They’re there, and will be for many years to come. But whether or not they will keep growing is now in debate.

*Urban Innovation Exchange highlights the people and projects transforming West Michigan through sustainable efforts. Matthew Russell is the editor for UIX Grand Rapids. Contact him at m.s.russell@gmail.com.*
BYRON TOWNSHIP, MI -- Standing at the top of the South Kent Landfill, growing mountains of garbage are dumped, leveled and compacted by giant machines.

It's a sight that should inspire anyone to reduce their solid waste footprint.

But an untrained eye would miss something even more important in all that garbage, Darwin Baas said.

The director of Kent County's Department of Public Works, which manages the about 300-acre property, can quickly identify items in those piles -- cardboard, wood, plastics, metal and organic matter -- and recognizes the missed opportunities represented by each.
"Most of what we're throwing away here can be reused or repurposed," Baas said.

That desire for a paradigm shift in solid waste management has led the county to invest $229,552 in a planning effort for more than 200 acres of county-owned land initially set aside for future landfill expansion.

Officials showed off the site just south of the landfill on Wednesday, Nov. 8, voicing their hope it will soon be transformed into a new "sustainable business park." They hope the site could attract companies specializing in reclaiming or converting waste materials that would otherwise be dumped into the landfill, ideally expanding West Michigan's footprint in green industry while simultaneously reducing the rate at which the area's landfills grow.

Looking north to the growing heap of garbage, Baas explained why he is recommending the county change its plans for the property set aside for future expansion.

"I think it's time to do it differently," he said. "I'm sorry, but I don't want to stare at another 200 acres of that."

A 2016 study by the West Michigan Sustainable Business Forum revealed 35 percent of solid waste in the region is organic material, 21 percent is paper, 14 percent is plastic and another 4 percent is metal. The total value of material thrown away that could be reused is estimated at $52 million.

A preliminary examination estimates 75 percent of the nearly 500,000 tons entering South Kent Landfill each year could be reused, recycled or converted into new materials.

The Department of Public Works has created a website -- reimaginetrash.org -- and produced the following video as tools to present the idea and seek input from local residents, business and industry leaders and other stakeholders: Not everyone is eager to set up shop next to a working landfill. But that's just what Kent County officials are counting on.

Kent County now owns much of the farmland to the south across the boundary into Allegan County, between 108th and 146th avenues and bounded by 14th Street on the west and U.S. 131 to the east. The county started buying land south of the landfill in the 1980s, Baas said, and has since acquired the majority of that area.

It's there they hope to build a new sustainable business park.

Baas envisions the park drawing companies interested in processing construction and demolition debris, composting organic material or those engaging in gasification or
some other type of energy conversion, turning organic and fossil fuel-based compounds back into a usable fuel source.

The plan provides a new opportunity for partnerships between local business and the county, said Tom Geyer, the environmental sustainability manager at Holland-based furniture manufacturer Trendway Corporation.

"As a business with a long, vested interest in West Michigan, we are excited to collaborate with the Kent County DPW as the master plan is developed," Geyer said in a statement.

It's not just economic potential driving the project.

At the current rate of growth, South Kent Landfill will run out of room for more trash by 2030. Rather than prepare to expand the landfill onto farmland it owns to the south, Kent County has set two lofty goals:

- A 20 percent reduction in landfill waste by 2020
- A 90 percent reduction in landfill waste by 2030

"We want to exit the landfill business by 2030," Baas said.

Pushing consumers and industry to reuse, compost and recycle more of their waste is crucial, but Baas called the business park effort an "essential" part of the county's plan to meet those goals.

Achieving the stated goals in 2020 and 2030 would be a significant reversal of recent trends.

The volume of trash being disposed at the county's landfill has been on the rise, increasing steadily from 692,529 cubic yards in 2013 to 942,334 cubic yards in 2016. Here are the recent totals for municipal solid waste received at the site, drawn from annual statewide solid waste reports:

2007: 575,917 cubic yards
2008: 611,923 cubic yards
2009: 599,340 cubic yards
2010: 590,762 cubic yards
2011: 638,319 cubic yards
2012: 591,265 cubic yards
2013: 692,529 cubic yards
2014: 824,450 cubic yards
2015: 939,466 cubic yards
2016: 942,334 cubic yards
South Kent is the only landfill currently accepting municipal solid waste in Kent County. It's located south of 100th Street along U.S. 131, at 13300 South Kent Drive SW.

The facility is operated by the Kent County Department of Public Works in conjunction with the county's incinerator -- or waste-to-energy facility -- on Market Avenue, its recycling plant on Wealthy Street and the North Kent transfer station near Rockford. The county also operated two now-closed landfills in Sparta and Kentwood. Both are now U.S. Environmental Protection Agency Superfund sites.

Though the county's goal is to all but stop sending trash to landfills, it moved forward earlier this year with a request to expand both the height and footprint of the South Kent Landfill.

If trends continue, that expansion will allow enough room for garbage until 2030, though space set aside for incinerator ash would run out even sooner.
Kent County public works staff to meet with community about plan to reduce waste

November 9, 2017

Kent County wants community input on a plan to recycle more of its waste. The Kent County Department of Public Works says 75 percent of its waste can be recycled into usable products, but it currently only recycles about 10 percent.

The department wants to build a business park that would help reduce the amount of waste in county facilities while helping emerging businesses save money on raw materials.

Dar Baas, who directs the public works department, released a statement about the project that said he thinks it would be a win for businesses and the community. “We have set a bold goal to divert 90 percent of trash from our landfill by 2030. Building a sustainable business park is an essential part of reaching that goal,” Baas said.

Baas was not immediately available to provide comments beyond his written statement. Public works staff will begin meeting with community stakeholders to gather input Tuesday, November 14 at 7 p.m. at the Byron Township Community Center.
The Kent County Department of Public Works met with community members Tuesday night to gather feedback on sustainable waste management plans.

Currently, the county recycles only 10% of its waste. The rest ends up in landfills. The county plans to open a sustainable business park next to the landfill. It would help businesses turn their waste into usable products.

Kristen Wieland, Marketing and Communications Director with Kent County's Department of Public Works, says there will be more community meetings in the coming months.

“Really to make sure that this business park is a success, that it's the right thing for our community. We believe it is, but we want everyone to come together and help us make that decision,” Wieland said.

The department hopes to reduce landfill waste 20% by 2020, and 90% by 2030.
According to Wieland, Kent County processed over 1 billion pounds of waste last year. That's enough waste to fill Van Andel Arena eight times, or The Big House in Ann Arbor twice.

Dave Bultsma of Byron Center lives near the South Kent County Landfill. He says the sustainability plan is good for the county.

“I think the recycling idea is a good idea. It's a necessity, so I think they're working in the right direction,” Bultsma said.

At the current rate in Kent County, the landfill in Byron Center will be completely filled by 2029. This would mean the county would use over 200 acres of adjacent land to expand the current landfill.

The next community stakeholder meeting will be in the spring. For more information about the department’s plans, you can visit www.imaginetrash.org.
BYRON TOWNSHIP, Mich. (AP) — A western Michigan county is hoping to shift the focus of its waste management operations by investing almost $230,000 in the planning of a sustainable business park development.

Kent County wants to build the park on more than 200 acres (80 hectares) of land that were initially set aside to expand the South Kent Landfill.

A preliminary estimate shows that about 75 percent of the nearly 500,000 tons (440,000 tonnes) of material entering the landfill could be reused, repurposed or recycled.

"I think it's time to do it differently," said Darwin Baas, the director of Kent County's Department of Public Works.

Officials hope the sustainable business park could attract companies that focus on reclaiming or converting waste material. Officials said the park would increase the state's green industry and reduce how quickly the area's landfills grow.

The South Kent Landfill is projected to run out of room for more trash by 2030 if it sustains its current rate of growth. County officials instead hope to reduce landfill waste by 20 percent by 2020 and have a 90 percent reduction in landfill waste by 2030.

"We want to exit the landfill business by 2030," Baas said.

Virginia-based consulting firm Gershman, Brickner & Bratton Inc. won the county contract to develop a plan for the property south of the landfill. Baas hopes to have a master plan ready to be presented to the county's Board of Public Works and the Board of Commissioners by August 2018.

The county is currently working on collecting feedback from the community on the sustainable business park plan.
National Reach To Date:


http://www.nwitimes.com/business/michigan-county-considers-building-sustainable-business-park/article_301a9fa0-9c75-5a0f-b49b-6f3efdb6372a.html


County eyes 90 percent waste reduction

Department of Public Works hopes to build a sustainable business park that will allow reuse of high-value items among incoming refuse.

November 17, 2017

(As seen on WZZM TV 13) The Kent County Department of Public Works is creating a plan to reduce landfill waste by 90 percent by 2030.

The agency will propose building a facility on 200 acres of land in Allegan County just south of the South Kent Landfill that will allow separation of the many high-value items received every day.

Without action, the South Kent Landfill will be at capacity by 2029, and a new landfill will have to be created on that 200 acres. To keep that from happening, Darwin Baas, the agency’s director, said it will take some big changes.
“We need a paradigm shift,” Baas said. “We’ve got to think differently about how we’re collecting it, how we’re separating it and how we’re going to process it going forward.”

The plan is to build a sustainable business park and rent the space to businesses that will sort through incoming trash and remove items that have value to their operations. Some of these items include wood, metals, plastics — anything that can be reused or repurposed, even items such as furniture. Compostable refuse and items that can be sent to a recycling facility also will be separated from incoming waste.

For instance, corrugated cardboard arrives at the landfill in nearly every load. At a market rate of around $120 per ton, Baas said cardboard shouldn’t be in the landfill. He also said residents throw away about $1 million worth of deposit bottles each year.

The landfill receives nearly 500,000 tons of waste per year. It is estimated 75 percent of waste destined for the Kent County landfill could be reused. County residents and businesses recycle 8 to 10 percent of their waste.

“That’s pretty low and pretty pathetic,” Baas said. “While we think we’re doing a pretty good job, we could be doing a whole lot better than what we’re doing.”

While many construction companies and commercial businesses are guilty of throwing away reusable materials like wood and cardboard because it’s easier, Baas said, a big part of the problem comes from many small businesses that think their landfill contribution is insignificant.

An important piece of the plan going forward is to educate residents about how their actions affect the greater cause. That includes teaching them what should or should not go to the landfill.

A common misconception, according to Kristen Wieland, Public Works marketing and communications manager, is people think sending recyclable or compostable materials to a landfill is fine because they decompose. But once the landfill is permanently shut down and covered with clay, materials do not decompose. She cited a University of Arizona study by William Rathje, in which he uncovered U.S. landfills: He found intact hot dogs, pieces of lettuce and decades-old newspapers that still were readable.

For the building project, Public Works is receiving construction consulting from Fishbeck, Thompson, Carr & Huber; waste management consulting from Gershman, Brickner and Bratton; and a financial analysis from Stern Brothers.

At this stage, the agency is discussing the idea with stakeholders and receiving feedback. The next step is to send an RFI, which it is planning for early January. The agency won’t have a timeline until it is further along in the process, but Wieland said the hope is to have a sustainable business park within the next five years.

Removing organic material from the waste stream may be the first focus in the project; if so, it would likely reduce landfill waste by 20 percent by 2020.
Public Works already has taken steps toward sustainability within its facility, such as capturing methane that creates 3.82 megawatts of energy and lights about 3,000 homes, and using disposed concrete for the site’s roadways.

There also is the waste-to-energy facility, which serves Grand Rapids, East Grand Rapids, Kentwood, Grandville, Walker and Wyoming and has converted more than 5 million tons of refuse since 1990 into electricity that lights 11,000 homes. After the burning process, the agency has recovered more than 124,000 tons of scrap steel that otherwise would not have been recycled. The ash that results from the burning packs and hardens significantly, and the agency is researching ways to use it in infrastructure such as roadways.

These steps are not enough, however, to keep refuse levels at what Baas believes is a reasonable level.

Wieland said the Public Works team knows what needs to be done; now it’s up to the community to get behind them.

“This is what we want, and we want to make sure that the community agrees with us because it can’t be (just) us doing this. It has to take the whole community to make this change.”

Reposted by Waste Advantage Magazine:

BYRON TOWNSHIP, MICH. - The Kent County Department of Public Works is creating a plan to reduce landfill waste by 90 percent by 2030.

The agency will propose building a facility on 200 acres of land in Allegan County just south of the South Kent Landfill that will allow separation of the many high-value items received every day.

Without action, the South Kent Landfill will be at capacity by 2029, and a new landfill will have to be created on that 200 acres. To keep that from happening, Darwin Baas, the agency’s director, said it will take some big changes.

“We need a paradigm shift,” Baas said. “We’ve got to think differently about how we’re collecting it, how we’re separating it and how we’re going to process it going forward.”

The plan is to build a sustainable business park and rent the space to businesses that will sort through incoming trash and remove items that have value to their operations. Some of these items include wood, metals, plastics — anything that can be reused or repurposed, even items such as furniture. Compostable refuse and items that can be sent to a recycling facility also will be separated from incoming waste.
Kent County, MI upgrading MRF and planning 'sustainable business park' to save landfill

November 22, 2017

Dive Brief:

- Kent County, MI will close its material recovery facility in Grand Rapids for three weeks starting Nov. 28 to make $1.5 million worth of upgrades, as reported by MLive. According to a release from the county’s Department of Public Works, this will include a new corrugated cardboard screen, additional optical sorting equipment and a conveyor system refurbishment. Cartons will be accepted once the facility reopens Dec. 19. In the meantime, residents have been asked to store their recyclables if possible.

- This is part of a larger effort to reduce Kent's waste 20% by 2020 and 90% by 2030. Officials recently hosted a meeting to outline plans for a new "sustainable business park" next to the South Kent landfill, as reported by Michigan Radio and the Grand Rapids Business Journal. The county is working with Gershman, Brickner and Bratton (GBB) to develop details of what this might entail.

- This process was announced in August and the county is aiming to issue a request for information in January. The goal is to finalize approvals in July 2018 and open the business park within five years. Kent County’s landfill is currently projected to reach capacity by 2029.

Dive Insight:

Kent County estimates that it processes 525,000 tons of material per year and only about 8% of that is diverted for recycling. The majority of this material is either recyclable or compostable, leaving ample opportunity to maximize diversion before considering a landfill expansion. Upgrading the MRF to handle cartons and better sort
cardboard, both growing parts of the waste stream in many areas, is a first step in that direction.

The hope is that using the 200 acres where that expansion might otherwise go for a resource recovery park could also help fuel economic development in the area. A 2015 report completed by GBB found significant interest and opportunities for "zero waste" economic development in the area. Potential ideas for the new project include organics processing infrastructure, reuse or repair options and solutions for recycling construction debris.

Michigan is also in the midst of a comprehensive overview of recycling efforts at a state level, with the goal of doubling its current 30% diversion rate. Recent reports identified a long list of opportunities for capturing more of the $368 million worth of recyclable material that is disposed of each year. While Michigan hasn't felt the full effects of China’s new import policies, state officials are interested in developing more regional end markets. An August GBB press release from Kent County also cited volatility from China as a reason to invest in more domestic processing infrastructure.

**Recommended Reading:**
- MLive  Kent County closing its recycling facility to install upgrades
- Michigan Radio  Kent County meets with community to discuss sustainability, recycling plans
- Grand Rapids Business Journal  County eyes 90 percent waste reduction
Rather than expanding a landfill that is expected to run out of room for more trash by 2030, a Michigan county hopes to build a sustainable business park on the land originally planned for landfill expansion. By building the park on more than 200 acres, and attracting companies focused on reclaiming or converting waste material, city officials hope to reduce landfill waste by 20% in the next few years. Estimates indicate that about 75% of material entering the landfill could be reused, repurposed or recycled, according to AP. The county is considering investing as much as $230,000 in the plan.

The county awarded a contract to VA-based Gershman, Brickner & Bratton Inc. to develop a plan for the property. The preliminary plan is expected to be presented to the Board of Public Works in August, 2018.
West Michigan’s construction industry grapples with diverting waste from landfills

November 26, 2017

BYRON TOWNSHIP — As Kent County looks to exit the landfill business by 2030, executives say West Michigan’s construction industry will need to adjust to a new model.

Darwin Baas, executive director of the Grand Rapids-based Kent County Department of Public Works (DPW), acknowledges the region’s booming construction sector faces a host of challenges in adopting “zero waste-to-landfill” policies that have become commonplace in West Michigan’s office furniture industry. While he doesn’t think the path to diverting waste from area landfills will be easy for area construction firms, he’s confident it can be accomplished with the right leadership and planning.

“These are smart, thoughtful tradespeople that if they just got together and said, ‘We’re going to do this differently because this is not a sustainable practice,’ I think we could solve it — I truly do,” Baas said. “You need to move the materials into the right container that’s going to the right place, but we need the place. It’s kind of that Field of Dreams thing: ‘If you build it, they will come.’”

Baas’ pitch to the construction industry comes at a time when the Kent County DPW thinks it has a value proposition for industries to move their waste away from landfills. With the South Kent Landfill near the U.S. 131 and 100th Street interchange nearing capacity in the next decade, the DPW plans to wind down the facility. The department now is developing plans for about 200 acres immediately south of the existing facility that the county purchased in recent years for a business park that could handle and process materials — construction or otherwise — and divert them from the landfill.
Given the “pathetic” rate of recycling in West Michigan — which Baas said hovers around 10 percent — the county, area residents and industry must complete a paradigm shift with regards to the disposal of waste, he said.

“My challenge — and the challenge the department has put out there — is, ‘Are we going to do something different?’ Baas said of the planned sustainable business park, which is still in the early planning stages.

The county has only begun to engage its stakeholders on how best to develop and build a facility that could convert waste materials into usable products. Still, Baas thinks the sustainable business park could be dedicated in part to better reusing construction materials such as cardboard, plastic, appliances and other waste that winds up in the landfill and that often has significant value.

“We’ve got to change,” Baas said. “We want to maximize the use of what we have (at the South Kent Landfill), but we need to do something very different in the future if we’re going to meet our (goal of a) 90 percent reduction in landfilling by the year 2030.”

**FINDING SOLUTIONS**

Logistical issues abound for construction companies when it comes to disposing of their waste. In particular, they face challenges with setting up multiple receptacles for sorting different materials, which can be tricky on small job sites.

But with enough planning on the front end of a building project, the construction industry could divert solid construction waste from the landfill, as well as reclaim and reuse many materials, sources said. More and more, it can make sound economic sense for the companies to do so.

“Working closely with your partners and your suppliers to drive waste out from beginning to end is an important element to landfill (diversion),” said Chris Beckering, executive vice president at **Pioneer Construction Co.**, a Grand Rapids-based general contracting firm.

Pioneer Construction regularly diverts more than 60 percent of construction waste materials from landfills, Beckering said. The target diversion rate is 75 percent or higher for projects seeking Leadership in Energy and Environmental Design (LEED) certifications, a rating system administered by the **U.S. Green Building Council** (USGBC) aimed at evaluating the energy efficiency of buildings.

Independent analyses of LEED buildings show that certified, newly built facilities tend to be around 30 percent more efficient than buildings without LEED certification, according to a 2016 cost benefit analysis from the **Illinois Institute of Technology**. Existing buildings renovated to LEED standards can generate more than 50 percent energy savings, according to the study.
Beckering agrees that using LEED as a main driver of diverting waste makes economic sense.

“What we’ve found as a company is a lot of the LEED point-generating activities associated with landfill diversion were actually just good business practices,” he said. “So to the extent you can recapture value from what was previously considered waste, why not just do that?”

**A COMPLICATED MATTER**

While LEED ratings have become common over the last two decades, it’s largely driven by developers seeking the certification for their projects. As such, there’s still no widely-adopted industry standard when it comes to construction and demolition waste diversion.

“I think the industry has gotten much better,” Beckering said. “But there’s still a wide spectrum when it comes to the adoption of best practices.”

Daniel Schoonmaker, executive director of the Grand Rapids-based West Michigan Sustainable Business Forum, applauds efforts by companies like Pioneer Construction to divert and cut down on waste materials. But he also notes that given the complexities of the construction industry and the wide variety of companies — ranging from large, multi-million dollar general contractors to one-man subcontracting operations — it’s all but assured that waste will continue to wind up getting buried.

“It is complicated as business itself,” Schoonmaker said. “It’s the tower crane type of projects where I imagine most effort is being given to reclaim materials because those projects have the most money. But it’s a general given that on most projects — I don’t want to say ‘all’ — but in pretty damn close to all, (waste materials are) going to go to the landfill, full stop.”

**PILING UP**

Reports from the state of Michigan tend to back up Schoonmaker’s sentiments. In the 2016 fiscal year, more than 49 million cubic yards of waste wound up in landfills in Michigan, according to a report from the Michigan Department of Environmental Quality.

Of that landfilled waste, at least 6.5 million cubic yards were reported to have come from construction and demolition materials.

Kent County’s Baas notes that construction and demolition waste actually accounts for far more than the annual DEQ reports show because it’s often difficult to track what types of materials are actually brought to a landfill.
For instance, the DEQ report breaks down landfilled waste into three categories: municipal and commercial waste, industrial waste, and construction and demolition waste.

In fiscal year 2016, the South Kent Landfill in Byron Township disposed of more than 940,000 cubic yards of waste, according to the DEQ report. All of that waste was classified as municipal and commercial waste, despite a significant amount coming from construction projects.

With the volume of truck traffic hauling waste into the facility, the county doesn’t track what kinds of materials are being brought in, Baas said.

Given the increasing volume of trash and the limited amount of space to dispose of it, Kent County must use new methods to deal with waste, meaning that the community’s various industries might have to as well, he added.

“Landfills are really easy to do. We’ve been doing this for 50 years,” Baas said. “I don’t want to look at another 200 acres of (landfill). We don’t want to do it the old way. We want to do it the new way.”

Reposted by C&D Recycler and Waste 360:

http://www.cdrecycler.com/article/michigan-construction-companies-face-diversion-challenges/

Kent County recycling facility to temporarily close

Nov 24, 2017

Kent County is closing its recycling facility temporarily. But this is a good thing in the long run, according to the Department of Public Works.

Kristen Weiland, marketing and communications director with the Kent County Department of Public Works, says the facility is shutting down so the county can install new equipment.

“Because we've had so much of a shift in material that's coming into the facility, we have to put in some new equipment to be able to manage that most effective way possible,” Weiland said.

Weiland says during the closure, most recyclables will be sent to the county's waste-to-energy facility where recyclables will be diverted to a facility that converts them to energy.

“So if there's anything positive coming out of this shutdown, other than the new equipment, it's that we can generate electricity from it,” she said.

The recycling center will close down on November 28 and should reopen by December 18.

The county recently launched an initiative to decrease waste going to landfills and increase sustainability.
Candid camera

Ever wonder what happens to your trash after it leaves the curb?

The Kent County Department of Public Works recently installed video technology at the Kent County Recycling and Education Center to help give residents an in-depth look at the county’s recycling program.

Cameras are installed throughout the recycling center to demonstrate aspects of the recycling process. The technology gives staff the ability to show detailed shots of the conveyor belt and what employees are picking out.

Public Works approached Custer Inc. to replace outdated analog equipment and further improve the facility’s technology. Custer installed two displays, a projection screen, a control panel, four HD cameras and an iPad mini 4 to control the equipment.

Kristen Wieland, communications and marketing manager at the Kent County Department of Public Works, said the technology offers ease of use while trying to give visitors an up-close view.

“We welcome thousands of people into our facility every year, so it’s important to have technology that can help us educate our visitors and show them the recycling process,” she said. “Video technology is a critical component of showing residents and businesses the impact of recycling. Custer installed tools that are simple to use, so we can spend more time engaging with visitors instead of wrestling with technology.”

Harvey Gershman, a solid waste management consultant at Gershman, Brickner and Bratton Inc., part of the team creating a master plan for a new sustainable business park in Kent County, has seen the new technology in action.

“I recently toured the Kent County Recycling and Education Center and was impressed by the video tour and how it helps people understand the enormity of what can be
recycled,” he said. “A big part of successful community recycling programs is making sure residents know how to recycle and that it’s accessible. Custer’s innovative video system allows people to see what goes into recycling and reinforce the importance of separating the many recyclable materials properly.”

Kent County Recycling and Education Center’s free tours are about an hour long and include a classroom discussion about recycling and a view of recycling equipment in action from the observation deck. Sign up at recyclekent.org.
Kent County closing its recycling facility to install upgrades

November 20, 2017

GRAND RAPIDS, MI -- Kent County’s recycling facility will close its doors to recyclable material for three weeks before the end of the year.

The reason behind the closure of the 8-year-old facility is a series of planned upgrades designed to improve efficiency and expand materials that can be accepted, according to a press release from the Kent County Department of Public Works.

"Periodic upgrades and equipment modifications like these ensure our recycling facility is up-to-date with the changing recycling needs of our community," Kristen Wieland, the county department’s communications and marketing manager, said in a statement.

The facility will be closed from Tuesday, Nov. 28, Tuesday, Dec. 19. During that time, equipment upgrades will be completed including a new corrugated cardboard screen, additional optical sorting equipment and refurbishment of the conveyor system.

Once completed, county officials expect the upgrades will allow the facility to begin accepting paper cartons, like milk cartons and juice boxes. They will also help the facility keep up with a growing supply of corrugated cardboard among the items sent to the recycling center.

"The Kent County Recycling & Education Center allows residents to easily recycle materials through a single-stream sorting process, and these equipment additions will allow us to accept even more types of materials and continue delivering high-quality services to the community," Wieland said.

The upgrades will amount to a $1.5 million investment in the facility, according to the press release.
Paper cartons were previously not recycled at the facility because they're considered a "mixed material," often with a plastic coating on the paper and sometimes include a metal layer.

Assuming the upgrades are completed on schedule, the facility will begin accepting paper cartons on Tuesday, Dec. 19.

Whenever the plant is shut down, Kent County diverts the recyclable material elsewhere, primarily to the county's Waste to Energy facility located about a mile away along Market Avenue.

On average, the recycling center processes about 140-160 tons of recyclable material on a daily basis. That means that more than 2,000 tons of recyclable material could be diverted during the three weeks the facility is offline.

Daniel Schoonmaker, executive director of the West Michigan Sustainable Business Forum, is instead encouraging local residents to hold onto their recycling during the scheduled downtime.

"Those with the ability to do so should hold onto their recycling until after the updates are complete on Dec. 19," Schoonmaker said. "These upgrades are necessary to improve the system and will ultimately help us reduce waste in our community."

The Kent County Recycling and Education Center, located at 977 Wealthy St. SW, is approaching its eighth year of operations.

Over the past seven years, the center has undergone periodic maintenance and upgrades to adapt to changes in community recycling habits. The recycling center has also been occasionally shut down by explosions, fires and other malfunctions.

In June 2016, a partially-filled propane cylinder made its way into the facility and ultimately caused an explosion that did $90,000 of damage.

The facility was again taken offline on Dec. 14, 2016, after a small fire caused by an electrical short in equipment and again on Feb. 20 due to a mechanical malfunction involving the facility's baler.

Yet another explosion occurred on June 22, when a small propane cylinder exploded after being drawn into the baler. An employee was knocked down and taken to a local med center for observation, but did not suffer any serious injuries.

One staff member was taken to a local hospital for observation after the explosion. The incidents have led the county's Department of Public Works to urge residents to make sure the items they put in their recycling bins are accepted, and particularly to refrain from placing dangerous items like old propane tanks into either their recycling or trash collection bins.
Propane tanks of all sizes should be brought to any of the following locations for safe disposal:

- South Kent Recycling & Waste Center, 10300 South Kent Drive, Byron Center
- North Kent Recycling & Waste Center, 2908 Ten Mile Road, Rockford
- Or any of Kent County’s SafeChem household hazardous waste drop off centers, listed at www.accesskent.com/waste.

In the meantime, Kent County is also undertaking a planning process for creation of a "sustainable business park" on property originally set aside for future expansion of the landfill it manages near the county’s southern boundary.

Sustainable business park planned in shadow of Kent County landfill
The planning process is underway for the more than 200-acre property, located just south of the South Kent Landfill near the Kent-Allegan county line.

County officials hope they can attract businesses who will find new ways to reuse, recycle and pull energy from materials that would otherwise end up in the landfill. It's part of a larger goal to reduce the amount of waste sent to the county's landfill by 20 percent by 2020 and by 90 percent by 2030.
This story features a number of interior and exterior photos of the newly upgraded recycling and education center.

It's an exciting time for the Kent County, Mich., Recycling & Education Center, a regional single stream recycling facility that accepts and processes recyclables from various counties. Last year, Custer Inc., a company that designs and builds full interior environments equipped with technology, custom capabilities and unique interior elements, developed an innovative technology solution for the center's 5,000-square-foot education space. And in November, the center underwent a $1.5 million upgrade, adding new equipment from CP Group to mechanically sort paper cartons and corrugated cardboard.

“Periodic upgrades and equipment modifications like these ensure our recycling facility is up to date with the changing recycling needs of our community,” said Kristen Wieland, communications and marketing manager for the Kent County Department of Public Works, in a statement. “The Kent County Recycling & Education Center allows residents to easily recycle materials through a single stream sorting process, and these equipment additions will allow us to accept even more types of materials and continue delivering high-quality services to the community.”

Last month, Waste360 Senior Editor Mallory Szczepanski attended a behind-the-scenes tour of the education and recycling center, where she got to see firsthand how recyclables dropped off at the center are sorted and processed. In this gallery, you can view a number of interior and exterior photos of the center.
Material recovery facilities (MRF) operate in an ever-changing world. Market trends swing, commodity streams change and customers give new directions. Add to these challenges the policy changes in China, which have virtually shut down a once-robust market, and some MRF operators are investing in substantial retrofits as they work to adapt.

Businesses must do their homework to decide if they want to retrofit and how far they want to take these projects, says Greg Gesell, project manager for HDR, an Omaha, Neb.-based architectural and engineering firm.

“They should evaluate to determine if they can adapt their existing system to anticipated needs,” says Gesell. “They must understand their buyers and know what materials they can get. And they should fully analyze these things before making the move to retrofit or expand.”

Operators doing upgrades should be thinking beyond their current business needs. And they should consider that an investment in rapidly advancing technology could prove more profitable than manual sorting or less-sophisticated equipment in the long run. Today, there is a big push from the public sector for more commercial and curbside services, and some of these jurisdictions are converting from dual stream to single stream, requiring new equipment and often more space.

Cambridge Companies in Griffith, Ind., recently worked with a Michigan facility that was converting to single stream. The end result was a major overhaul—to the tune of a 10,000-square-foot addition to accommodate the additional tipping area needed as well as a new equipment package.

Still, says Evan Williams, project design manager for Cambridge, “You should not be reinventing the wheel. There are often established equipment packages and building approaches to make it work.
“When you are considering a project, first see if expansion makes sense and if you are able to do it. It will depend on many factors such as zoning and site specs. If you can’t put all the new specs in place that would be ideal, you may need to make other changes, with trade-offs based on budget and site restrictions.”

Where operators have flexibility, they can make areas slightly smaller and make operational changes to accommodate this. For instance, they may run the facility longer to work through material that backs up, or they may find a method to better manage incoming materials.

Operators should always be thinking of the future, says Gesell. “If I plan to retrofit, I would try to leave plenty of space to allow for additional equipment like optical sorters and possibly robotics, as these technologies are becoming more cost effective than manual sorting.”

Meanwhile, a manual sorter takes up about eight to 10 feet along a conveyor, which is less than half the footprint for a single optical sorter.

Building for the future also means planning for capacity. Williams suggests doing a waste analysis and market analysis to get five-year and 10-year projections. Looking at long-term trends in service areas in terms of participation and graphics, he says that waste industry consultants typically provide the former and the latter is usually available to the public.

When Kent County, Mich. built its MRF in 2010, workers handpicked cardboard, a stream that has since grown exponentially as online shopping boomed.

“We’ve since put in an old corrugate cardboard (OCC) screen, and it’s been a night and day difference,” says Nic Vandervinne, resource recovery and recycling manager for Kent County Department of Public Works. "We went from eight people picking cardboard to one quality control person, and we are considering eliminating the quality control [person],”

The county also added an optical sorter that handles colored high-density polyethylene (HDPE), natural HDPE and fiber cartons. This, too, resulted in a reduced picking line as well as the ability to manage fiber cartons for the first time.

The last change was to the paper line to facilitate sorting mixed paper.

“There had been an extra cost for handling newspaper, and the volume was not there. So, we set up a mixed line incorporating the newspaper, where the newspaper-only line had been, because there was a bigger station there where we could automate the process,” says Vandervinne “Prior, one grade went into a live hopper and the other on the floor that we pushed by hand. Now everything goes into the hopper, making baling easier as the material is continuously run out.”
The whole retrofit cost about $2.2 million, which included installing the baler, OCC screen, optical sorter, blower for cartons and the retrofitted paper line.

“Now we run 18 to 20 tons an hour, which has not changed. But we drove down our residue rates significantly,” comments Vandervinne.
Custer Outfits Kent County, Mich., Recycling and Education Center with an Innovative Technology Solution

December 5, 2017

The Kent County Department of Public Works tasked Custer Inc. with developing an innovative technology solution for its 5,000-square-foot education space.

The education programs and tours at the Kent County, Mich., Recycling and Education Center, a regional single stream recycling facility that accepts and processes recyclables from various counties, are more than a learning tool; they’re an experience. This is partially due to the new technology upgrade the center received this fall, which replaced the outdated analog technology that was used in the center for the past seven years.

The Kent County Department of Public Works, which operates and manages the center, tasked Custer Inc., a company that designs and builds full interior environments equipped with technology, custom capabilities and unique interior elements, with developing an innovative technology solution for its 5,000-square-foot education space.

“The Kent County Department of Public Works reached out to us because its recycling and education center was having issues with its outdated analog technology, projection screen and cameras,” says Mike Christe, technology sales at Custer. “We walked the department through some of the solutions that we could offer to future-proof the center, and the department decided to move forward with a full system reboot opposed to just throwing some Band-Aids on some of the center’s broken or outdated technology components.”

To meet the technology needs of the center, Custer installed new video and audio technology that gives employees, volunteers, community members and school groups an in-depth look at the county’s recycling program and how materials are sorted and processed every day.
“The new technology gives us the capability to improve our education programs,” says Kristen Wieland, communications and marketing manager at the Kent County Department of Public Works. “Before the upgrade, we only had three cameras in the facility and limitations kept us from being able to add a camera on the tipping floor. Now, we have a fourth camera on the tipping floor, and we can actually show visitors the piles of recyclables that are waiting to be recycled so that they can see the full picture of the recycling process.”

The new technology, which includes two displays, a projection screen, a control panel, four high-definition cameras and an iPad mini 4 to control the audio and visual equipment, allows staff and visitors of the center to easily connect to the system to share content, ultimately enhancing the recycling education experience.

“One of the biggest benefits of the new technology is the quality,” says Wieland. “With the zooming feature and clear image quality, we are able to help people understand what we do and how the sorters ensure that the non-recyclable materials that make their way onto the conveyor belts don’t make it to the end market. In the long run, I hope this technology upgrade will help us tell our story and help us explain why recycling is important and how following the rules of recycling can make a difference.”

The installation only took about a week to install because Custer worked around the operational hours of the facility so that it wouldn’t experience any downtime. Altogether, from time of talk to completion, the project took roughly six months to complete.

The project also goes hand-in-hand with the Kent County Department of Public Works’ goal of reducing landfill waste by 90 percent by 2030. The department recently met with stakeholder groups to begin its master planning process to reach that goal, and it’s currently in the process of creating a master plan to build a new sustainable business park that would use recycled materials and covert waste materials that would otherwise be sent to landfill into usable products, such as fuel pellets, plastic beads and textiles.

“In Kent County alone, the residential recycling rate is less than 10 percent right now so we have a long way to go to achieve our 90 percent diversion goal,” says Wieland. “We currently have a lot of material being sent to landfill and a waste-to-energy facility that doesn’t need to go there, and our goal is to get people to recycle right so that we can move the needle in the right direction.”

Custer is working closely with the Kent County Department of Public Works to help achieve that goal of 90 percent by 2030, and it’s also participating in focus groups and conversations to determine how more waste can be reduced.

“It takes a team to reduce waste, and the more that we can further educate each other and ourselves about waste reduction and recycling the better,” says Natalia Connelly, director of branding at Custer. “We are eager to be part of the solution to the sustainability challenge, and we are working hard to help the Kent County Department of Public Works meet that 90 percent waste diversion goal by 2030.”
In addition to the technology upgrade, the center has closed its doors until December 19 to undergo a $1.5 million equipment upgrade to improve its recycling efficiency and to add dairy cartons and juice boxes to its list of accepted materials. The new equipment being added to the facility by CP Group includes a new corrugated cardboard screen, additional optical sorting equipment and conveyor system refurbishment. These upgrades will allow the facility to accept paper cartons and mechanically sort corrugated cardboard to keep up with the community’s growing recycling needs.

“Prior to having this equipment at our facility, paper cartons were not recycled because they’re a mixed material,” comments Wieland. “They are coated in plastic and sometimes also have a metal layer. These layers make them great for storing food and beverages but make them challenging to recycle. Just think about the volume of juice boxes and milk cartons that come from school cafeterias that can be recycled now!”
Sustainable Business Park
Media Report: Sept. 2017 - June 2018
Total Count: 137 Media Hits

Earned media and social media coverage of the SBP has been consistent with greater coverage around the launch of the master plan process (fall 2017), release of the RFI (winter 2018) and RFI responses (spring 2018).
Potential Reach - Earned Media

Total Reach: 86.2 Million Readers/Viewers

Sep 1, 2017 - Jun 30, 2018

The greatest number of potential viewers coincided with media coverage around the launch of the SBP master plan which garnered national attention.
Heat Map

Michigan 34
California 10
Illinois 6
Washington 6
Montana 5

Sep 1, 2017 - Jun 30, 2018

As expected, SBP media coverage was primarily in Michigan but there was also interest from the West Coast and in the Southeast.
Top Sources

- MLive.com: 19%
- EnvironmentGuru: 19%
- Grand Rapids Business Journal: 14%
- Waste360: 11%
- Michigan Radio: 11%
- WZZM 13: 5%

Sep 1, 2017 - Jun 30, 2018

SBP coverage broken down by media outlet.
Trending Themes - News

waste material  sustainable business park

county  focus  Public Works

South Kent Landfill

percent  park  landfill  planning

Sep 1, 2017 - Jun 30, 2018

These are the keywords and key phrases that are most frequently associated with the earned media coverage for the SBP.
Sustainable Business Park Master Plan

APPENDIX F

Stakeholder Review Committee Introductory Letter

Sustainable Business Park Handout

Combined Minutes from Stakeholder Review Committee Meetings (3 meetings)
January 30, 2018

Dear Stakeholder Review Committee member:

Thank you for volunteering to serve on the stakeholder review committee for the Kent County Department of Public Works (DPW) Sustainable Business Park project. This committee is advisory in nature and is intended to provide insights, considerations and suggestions to the DPW staff and consultants working on the master planning of the Sustainable Business Park in Allegan County (Dorr Township), adjacent to South Kent Recycling & Waste Center. While this project is still largely ‘under the radar’, its success is critically important to our region and your involvement on this committee will be tremendously valuable.

Our committee consists of representatives from a variety of industries and interests across the region:

- Dick VanderMolen – chair
- Bill Stough – representing manufacturers
- John VanTholen – representing waste haulers
- Rick Chapla – representing economic development interests
- Katie Venechuk – representing state government
- Kari Bliss – representing local business
- Bill Wood – representing environmental interests
- Steve Achram—representing building and construction industry
- Doug LaFave—municipal representative (Kent County)
- Jeff Miling—municipal representative (Allegan County)

I appreciate your willingness to serve and I want to assure you that your time will be respected. I anticipate meeting twice and the remainder of the time will be spent communicating via email/phone after reviewing and commenting on documents.

The tasks that are ahead of us include:

1. Review the Sustainable Business Park Request for Information (RFI) when it is released (February 2018) and share with interested respondents in our network
2. Suggest DPW to present on the Sustainable Business Park project to any interested groups in our network (February-April 2018)
3. Evaluate pre-screened respondents to RFI (April/May 2018)
4. Provide feedback on the master plan draft (July 2018)
The anticipated timeframe for the committee is February through July 2018, as follows:

- Feb through June 2018: 5 hours (1 hour per month) to receive project updates via email
- April or May 2018: 3 hours including an in-person meeting to review and provide feedback on pre-screened responses to RFI
- July 2018: 4 hours including an in-person meeting to review and comment on the master plan Draft #2 following DPW review/comment prior to its release to the public in August 2018

As the chair, you will receive communication from me as well as Kristen Wieland, project manager for DPW. Our contact information is below:

Richard (Dick) VanderMolen - rmolen@sbcglobal.net - 616.450.2628
Kristen Wieland - Kristen.wieland@kentcountymi.gov - 616.293.7175

Again, thank you for serving the community on this important project.

Sincerely,

[Signature]

Richard VanderMolen
THE OPPORTUNITY

Attract new business and investment to West Michigan while accelerating our progress toward a more sustainable community.

REIMAGINE TRASH

The Kent County Dept. of Public Works has the opportunity to put West Michigan on the map as a national leader in recycling and waste reduction while helping protect our air, land and Great Lakes. Each year, Kent County DPW processes over 1 billion pounds of trash, of which more than 75% could be reused, recycled or repurposed. The Kent County DPW has set a bold goal to divert 90% of trash from the landfill by 2030, and the Sustainable Business Park is a key part of achieving this goal. This new approach to cutting back on trash dumped in the South Kent Landfill just makes sense: it will extend the life of the current landfill, protect the environment, and create new jobs and spark investment in our community.

SUSTAINABLE BUSINESS PARK

Building a Sustainable Business Park in Kent County will help our community cut down on trash buried in landfills and attract investment and jobs from companies that convert waste into usable products. The Park will take waste materials that would otherwise be dumped into a landfill and reuse or recycle those materials into products like compost for agriculture, fuel pellets, plastic pellets for new plastic products, biofuels and textiles. A variety of complementary businesses, entrepreneurs and startups that need access to raw materials could tap into these reclaimed or converted materials, incorporating them into their production processes or transforming them into entirely new products. The Park has tremendous potential for preserving open space, establishing a center for innovation, and both producing and using renewable energy to power operations, which will help save money on electricity costs and further protect our air and Great Lakes.

OUR PLAN OF ACTION

We’re bringing together national and local experts to engage in a plan for the 200-acre Sustainable Business Park to make West Michigan a national leader in circular economy thinking. The plan will look at the necessary improvements, costs, funding sources, and a proposed implementation schedule. As part of the plan, the DPW is actively working with the business community to attract potential tenants and complementary technologies.

A TRIPLE BOTTOM LINE WIN

It’s a win for the **people** of West Michigan who can rest assured that their waste will continue to be managed responsibly but in a way that benefits future generations instead of burdening them.

It’s a win for the **planet** when we look toward innovative ways to reintroduce discards back into the value stream as feedstock, plastic pellets, fuels, & more.

It’s a win for our **economy** when we localize the processing of materials. The Sustainable Business Park will support local jobs and our West Michigan economy, all while capturing the $52 million in ‘easily recoverable’ materials of value that are currently going into landfills in West Michigan.

PROJECT CONTACT

Kristen Wieland | 616.632.7923 | kristen.wieland@kentcountymi.gov | www.reimaginetrash.org/vision
Stakeholder Review Committee (SRC) for
Sustainable Business Park

Introductory Meeting & Site Tours
May 9, 2018
11:00 am

Stakeholder Review Committee members:
Dick VanderMolen (chair); Bill Stough (representing manufacturers); John VanTholen (representing waste haulers); Rick Chapla (representing economic development interests); Katie Venechuk (representing state government); Kari Bliss (representing local business); Bill Wood (representing environmental interests); Steve Achram (representing building and construction industry); Doug LaFave (municipal representative - Kent County); Jeff Miling (municipal representative - Allegan County)

11:00 Lunch, Welcome and Introductions (Kristen Wieland)

11:10 Overview of Project (Dar Baas)

11:35 Where we are today (Kristen Wieland)

- GBB’s role
- Stakeholder Feedback
- Technology Tours
- RFI Review Process

11:45 Timeline for Master Plan and beyond (Kristen Wieland)

11:50 Role of the Stakeholder Review Committee (SRC Chair Dick VanderMolen)

- Review technologies & processes and evaluate how they will meet our goals
- Review Master Plan & provide feedback
- Ask for and receive feedback from peers; advise of opportunities for dialog with other stakeholders; assist in communicating the Master Plan to the community
Stakeholder Review Committee (SRC) for Sustainable Business Park Technology Work Session June 20, 2018 1:00 pm

Stakeholder Review Committee members:
Dick VanderMolen (chair); Bill Stough (representing manufacturers); John VanTholen (representing waste haulers); Rick Chapla (representing economic development interests); Katie Venechuk (representing state government); Kari Bliss (representing local business); Bill Wood (representing environmental interests); Steve Achram (representing building and construction industry); Doug LaFave (municipal representative - Kent County); Jeff Miling (municipal representative - Allegan County)

1:00 Welcome (Dick)

1:05 Updates since May 9 (Kristen)

− the role of an academic institution in this project
− China Sword policies & their impacts
− Envision certification
− Others?

1:30 Expectations of the Master Plan (Steve)

1:40 Review Technologies and Groupings (Jennifer)

− discuss technology videos & matrix
− discussion of key points
− concerns & supports?

3:00 Next steps for the Committee (Dick)

1. Review draft Master Plan (SET DATE: July 12?)

2. Recommendations to the Board of Public Works (Aug 2)
   ▶ Identify a SRC representative to provide a 10 minute presentation to the BPW
3. Media & communications (Steve)
   - Outreach for the 90x30 vision and the Sustainable Business Park

4. (Time permitting) Discuss in preparation for the next meeting:

   As a community, what do we need to do to ensure success of this Park from your perspective as a member of the community, as a representative from your organization and a representative of your industry?
   - Logistics for processing & transfer north of Grand Rapids
   - Policy
   - Infrastructure
   - What is lacking from responses to the RFI to assist your business/organization/industry?

The role of the Stakeholder Review Committee:

- Review technologies & processes and evaluate how they will meet our goals
- Review Master Plan & provide feedback
- Ask for and receive feedback from peers; advise of opportunities for dialog with other stakeholders; assist in communicating the Master Plan to the community
Stakeholder Review Committee (SRC) for
Sustainable Business Park

Draft Master Plan Work Session
July 13, 2018
9-11:30am

Stakeholder Review Committee members:
Dick VanderMolen (chair); Bill Stough (representing manufacturers); John VanTholen (representing waste haulers); Rick Chapla (representing economic development interests); Katie Venechuk (representing state government); Kari Bliss (representing local business); Bill Wood (representing environmental interests); Steve Achram (representing building and construction industry); Doug LaFave (municipal representative - Kent County); Jeff Miling (municipal representative - Allegan County)

9:00 Welcome & Introductions (Dick)

9:05 Follow-up Discussion on Technologies & Groups (all)

9:20 Draft SBP Master Plan section/special content presentations (Jennifer)

  O FTC&H
  O PFM
  O GBB
  O Byrum & Fisk

All comments due July 20th from DPW and SRC

10:45 SRC Recommendations:
As a community, what do we need to do to ensure success of this Park from your perspective as a member of the community, as a representative from your organization and a representative of your industry?

  O Logistics for processing & transfer north of Grand Rapids
  O Policy
  O Infrastructure
  O What is lacking from responses to the RFI to assist your business/organization/industry?

Earl G. Woodworth
Building
1500 Scribner Avenue NW
Grand Rapids, MI 49504
616.632.7920 tel
616.632.7925 fax
kcedpw@kentcountymi.gov
11:15  **Next steps for the Committee** *(Dick)*

- Recommendations to the Board of Public Works (Aug 2)
  - Identify a SRC representative to provide a 10 minute presentation to the BPW

**The role of the Stakeholder Review Committee:**

- Review technologies & processes and evaluate how they will meet our goals
- Review Master Plan & provide feedback
- Ask for and receive feedback from peers; advise of opportunities for dialog with other stakeholders; assist in communicating the Master Plan to the community
1. An overview of the project was given including the fact that Kent County hopes to divert 90% of their trash from landfills by 2030.
2. Tom Hooker asked about the gathering between waste haulers, which Dar attended. Dan Rose said he would find out more about the meeting to pass on.
3. The sewer and water was discussed and the following was noted:
   a. Sewer is nearby the property and watermain is located across US 131.
   b. Existing 18” sewer extends to the rail from the north
   c. Dorr currently has private sewer/water system which ends at 144th Ave.
   d. The masterplan shows the sewer is 18”
   e. An inter-governmental agreement may be needed for sewer as Byron Township would be serving Dorr Township properties.
   f. The Byron masterplan shows the sewer extending along Buck Creek, then crossing east under the highway towards Division.
   g. A gravity sewer is possible.
   h. Water, regardless of what is done, will simply be a distance challenge.
4. Most of the park will be in Dorr, but most of the sewer/water is in Byron.
5. Zoning in Byron is a mix of agricultural and industrial.
6. Zoning in Dorr will have to be rezoned and will then need to be special use according to Lori.
7. The zoning masterplan needs to be reopened to incorporate the type of project.
8. The public needs to be made aware of the changes due to possible discontent over increased traffic and road millage needed for construction traffic.

9. Tom Hooker, and seconded by Jeff, stressed the importance of transparency. The impact of the project needs to be made clear to the townspeople and their opinions need to be heard. It is important to stress the following facts to the townspeople:
   a. The site will either be a landfill or an industrial park. There is no real third option.
   b. With the industrial park comes the potential for jobs

10. Tom Hooker brought up the topic of cost and potential subsidies or grants. Dan emphasized the fact that the costs, and potential profits, will depend greatly on the type of businesses brought in, how much water/sewer is needed, and the tip fees.

11. There are potential grant opportunities through the state given the park’s emphasis on business development and recycling. A financial consultant has already been hired to look into these things.

12. RFP’s have been submitted and the responses are being sorted through. The process is halfway through and there is hope that 10-15 companies will move into the park, depending on the area required by each company.

13. The question of whether or not the county will own the property after the park is created was brought up. Dan and Ryan believe that the county will act as a developer for the infrastructure creation, and then will either sell or lease the land depending on the client.

14. The issue of tax bases was brought up as a concern for Byron township. Most of the industrial park is located in Dorr township, and therefore will receive most of the taxes. However, most of the construction for sewer/water and traffic flow will occur in Byron township.

15. A potential for a 425 agreement was suggested.

16. Lori brought up the fact that for zoning PUD could lead to a smoother transition. David agreed – a similar process would be beneficial in Byron Township too.
   a. Handling a public hearing up front may be easier than waiting until later in the process.

17. Potential for the industrial park to look into a tax break in Dorr (IFT) was brought up.

18. Byron and Dorr townships need a solid Masterplan before going to the citizens.

19. Property owners surrounding the potential industrial park have not been approached, as the property has been gained when the opportunity has arisen.
Sustainable Business Park Master Plan

APPENDIX G

Phoenix, Arizona Trip Report
Kent County Sustainable Business Park: Phoenix, AZ Resource Innovation Campus Visit

Prepared for:
Kent County Department of Public Works
1500 Scribner Ave NW
Grand Rapids, MI 49504

Prepared by:
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2010 Corporate Ridge
Suite 510
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PHOENIX, AZ RESOURCE INNOVATION CAMPUS VISIT

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1. Executive Summary

Gershman, Brickner & Bratton Inc., (GBB) is assisting the Kent County Department of Public Works (County) in the development of a Master Plan for a Sustainable Business Park (SBP) to further the County’s goal of diverting 90 percent of its municipal solid waste (MSW) from landfills by the year 2030. As envisioned, the SBP will be the home of a variety of complementary waste management and product manufacturing companies who synergistically recover and process waste materials into feedstocks to produce useful products and energy. The SBP Master Plan development effort began in the fall of 2017 and is anticipated to conclude in the fourth quarter of 2018.

As a part of the Master Plan development process, a team of County representatives visited the City of Phoenix, AZ’s Resource Innovation Campus (RIC) on January 31, 2018.

Team members on the trip included:

- Kristen Wieland, Communications & Marketing Manager, Kent County Department of Public Works;
- Jennifer Porter, GBB Senior Project Manager, advisor to Kent County.

This report summarizes observations from the visit and provides photographs of relevant systems, equipment and processes.

2. Background

From website:

In 2013, the Public Works Department launched its waste diversion and sustainability initiative, Reimagine Phoenix, with a citywide goal of diverting 40 percent of trash from the landfill by the year 2020 by considering how we reduce, reuse, recycle, reconsider, and reimagine healthy consumption habits to minimize waste in our daily lives.

The Reimagine Phoenix initiative aims to redefine trash for Phoenix residents and businesses. Through its programs, its campaigns, its partnerships, it demonstrates that waste is a valuable resource and could be transformed into other products or source of energy.

The Public Works Department will focus on improving three areas that will help achieve the city's waste diversion goal of 40 percent:

- Solid waste programs - enhancing current city solid waste programs to encourage more sustainable practices, such as recycling and composting.
- Private and public sector partnerships - partnering with industry and community leaders to find viable solutions to waste diversion issues and concerns.
- Community and educational outreach - increasing communication and education about diversion and sustainability efforts to residents and to businesses.

Resource Innovation Campus overview [video]
3. Overview

Wieland and Porter met with Lucas Mariacher (Zero Waste Coordinator) and Brenda Yanez (Public Information Officer) from the Public Works Department and toured the facilities.

Lucas Mariacher lucas.mariacher@phoenix.gov
Brenda Yanez brenda.yanez@phoenix.gov

As the 5th largest US city and the fastest growing city in the US, the population of Phoenix is 1.5M and 4.5M in the region. The City of Phoenix operates municipal collection of solid waste to 400,000 customers. Recycling is offered weekly. Yard debris is offered to a subset of 158,000 residents, 7,000 of whom are currently subscribing for an additional $5.00 per month.

The city owns and operates two transfer stations, one in North Phoenix off of the I-17 freeway and Dixileta Drive, and the other in South Phoenix off of Lower Buckeye Road and 27th Avenue. The location at Lower Buckeye Road is the Resource Innovation Campus (RIC)/We Care facility.

On the RIC site, the City has a closed landfill, a MRF, and a waste transfer operation to the current landfill 65 miles away. As technically the first tenant of the RIC, a Turned Aerated Pile (TAP) compost facility was built in April 2017 with a $14M city investment in infrastructure, now operated by WeCare. The size will be 27 acres at full roll out, processing 220,000 tons per year (approximately 55,000 tons per 5.5 acre phase). No other waste processing anchor is present.

It was noted that the City received a limited responses from a series of Call for Innovators for the RIC. A research & development partnership is in place with with Arizona State University at the university. Palm frond recycling for animal feed is also about to start at the RIC.
Phoenix Resource Innovation Campus Visit

Figure 3 Entering scale at Buckeye Road
Figure 4 Detail scale at Buckeye Road

Figure 5 MRF onsite
Figure 6 MRF onsite (2)
Figure 7 TAP Compost site water catchment and reuse

Figure 8 TAP Compost site bunkers for aeration

Figure 8 TAP Compost entrance/exit

Figure 9 Exit from Public Works building
Sustainable Business Park Master Plan

APPENDIX H

San Jose, California Trip Report
Kent County Sustainable Business Park Material Processing Site Visits

Prepared for:
Kent County Department of Public Works
1500 Scribner Ave NW
Grand Rapids, MI 49504

Prepared by:
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1. Executive Summary

Gershman, Brickner & Bratton Inc. (GBB) is assisting the Kent County Department of Public Works (County) in the development of a Master Plan for a Sustainable Business Park (SBP) to further the County’s goal of diverting 90 percent of its municipal solid waste (MSW) from landfills by the year 2030. As envisioned, the SBP will be the home of a variety of complementary waste management and product manufacturing companies who synergistically recover and process waste materials into feedstocks to produce useful products and energy. The SBP Master Plan development effort began in the fall of 2017 and is anticipated to conclude in the fourth quarter of 2018.

As a part of the Master Plan development process, a team of County representatives visited several advanced waste processing facilities in and around San Jose, California during the week of March 19, 2018. The state of California and its communities are known as leaders in the adoption and implementation of policies, programs and technologies with the goal of promoting the recovery and recycling of discarded materials and the diversion of waste away from disposal in landfills.

Over a two and half day period, the County team visited six material processing facilities:

- The GreenWaste Recovery Material Recovery Facility (GreenWaste) in San Jose, CA;
- The Sunnyvale Materials Recovery and Transfer Station (SMaRT) in Sunnyvale, CA;
- The Monterey Regional Waste Management District (MRWMD) campus in Marina, CA;
- The Zanker Recycling (Zanker) facility in San Jose, CA;
- The Zero Waste Development Company facility in San Jose, and,
- The Republic Services Newby Island Resource Recovery Center (Newby Island) in Milpitas, CA

The facilities included a combination of publicly and privately-owned systems processing residential and commercial single stream recyclables, mixed MSW, yard waste, source separated organics, construction and demolition waste (C&D) along with a product reuse center.

Team members on the trip included:

- Dar Baas, Director, Kent County Department of Public Works;
- Dan Rose, Solid Waste Operations Manager, Kent County Department of Public Works;
- Molly Sherwood, Environmental Compliance Manager, Kent County Department of Public Works;
- Kristen Wieland, Communications & Marketing Manager, Kent County Department of Public Works;
- Ken Yonker, Kent County Drain Commissioner and member of the Kent County Board of Public Works;
- Dick VanderMolen, former Kent County Commissioner; Chair of the Stakeholder Review Committee for Kent County Sustainable Business Park Master Plan;
- Bill Stough, Sustainable Research Group; Representative on Stakeholder Review Committee for Kent County Sustainable Business Park Master Plan; advisor to Kent County; and,
- Stephen Simmons, Senior Vice President of GBB, advisor to Kent County.

This report summarizes observations from the visit and provides photographs of relevant systems, equipment and processes.
2. Facilities

2.1. GreenWaste Recovery

GreenWaste Recovery is a local privately-owned solid waste management company that specializes in the collection and processing of residential and commercial trash, yard trimmings, curbside recyclables food waste, and C&D debris. The owners of GreenWaste provide waste management services in San Jose, Santa Cruz County, Portola Valley, Woodside, Los Altos Hills, Capitola, Scotts Valley, Palo Alto, and portions of Santa Clara County. The parent company of GreenWaste also owns the Zanker Recycling facility which was visited by the team. The owners also have interest in Zero Waste Energy LLC, a developer of anaerobic digestion systems.

![Figure 1 Green Waste Recovery](image1)

![Figure 2 GreenWaste Education Center](image2)

GreenWaste Recovery operates three waste processing systems at this facility including a 45 ton per hour (tph) single stream, material recover facility (MRF), a 50 tph MSW MRF which removes compostable organic waste from residential and multi-family dwellings for further processing at an affiliated site, and a yard waste MRF / composting site. The single stream MRF reportedly recycles over 95% of its inbound material. At the time of the tour, the MSW MRF was not operational as it was being retrofitted.

Our facility tour was provided by Kevin Martinez, facility coordinator. The timing of our arrival for the tour occurred between shift breaks at the MRF so it was not operating. A video of GreenWaste MRF in operation can be found on a website [here](http://example.com).

Kevin reported that despite adverse market conditions relating the China waste ban, GreenWaste is able to secure markets for its recovered materials. Kevin attributed that to the high quality of its recovered material bales which he attributes to two factors:

- Extensive public outreach and communication efforts by GreenWaste. Kevin reported that their overall residue level at the MRF is about 2 percent; and,

1 Additional information regarding GreenWaste can be found at [http://www.greenwaste.com/about-us](http://www.greenwaste.com/about-us)
That after every material separation process, GreenWaste incorporates the manual picking of non-desirable contaminants.

Organic material removed in the mixed waste processing system is transported to an affiliated company Z-Best Compost in Gilroy California where it is processed and used in the agriculture industry in the Salinas Valley.
Material Processing Site Visits

Figure 7 Infrared Sorter

Figure 8 Plastic Film Hoods

Figure 9 Post Separation Quality Control

Figure 10 Film Hood Suction Fan
2.2. Sunnyvale SMaRT Station

The SMaRT station is a materials recovery and reuse transfer facility shared by the communities of Sunnyvale, Mountain View and Palo Alto. The facilities are operated by a private company, Bay Counties Waste Services on behalf of three communities. The facility has been in operation for approximately 25 years, 10 years in its current configuration.

The material processing systems on the site include a single stream MRF, a mixed waste processing line processing both residential and commercial wastes, a simple construction and demolition waste system, and equipment for the grinding of brush and yard waste. The facility also accepts residential source separated food waste which is collected by the communities using a 70/30 split recyclables container. The food waste is processed into a slurry on site and transported to a regional plant where it is dried for animal food. A video showing the operation of the SMaRT facility can be found on a website here.

The facility operator is incentivized to achieve high levels of diversion through the sharing of recovered revenues plus landfill cost avoidance. While the communities own the facility, the operator may propose and implement capital improvements through the service agreement which may be funded via a combination of increased service fees, recovered material revenues, and landfill cost avoidance. The

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2 Additional information regarding the SMaRT Station can be found at https://sunnyvale.ca.gov/property/recycling/getrid/center.htm
installation of the facility's 2D / 3D material separators was given as an example of operator proposed improvements.

The facility reports it achieves an approximate 33 percent diversion through its mixed waste processing stream consisting of 20 percent organics and 13 percent recyclables. The organic materials are shipped to the Z-Best composting facility in Gilroy.

The facility positively picks for desired material recovery, thus leading to relatively clean bales. The facility reported that while its recovered material revenues have been impacted by the recent China import bans, it has been able to sell all its recovered materials.

Figure 14 Residential Waste Tipping Area

Figure 15 Commercial Waste Tipping Area

Figure 16 Commercial Waste Feed

Figure 17 Residential Waste Feed
Material Processing Site Visits

Figure 18 Pre-Screen Bulky Removal

Figure 19 Residential Pre-Screen Recovery

Figure 20 Screening Trommels

Figure 21 Trommel Unders Conveyors
Material Processing Site Visits

The MRWMD is a solid waste management district established by Monterey County, CA which serves approximately 170,000 residents in communities in the western part of the county on the Monterey peninsula.

The District’s facilities are located on 475 acres and include a landfill, a MRF, the Last Chance Mercantile (a reuse center) and other citizen convenience facilities. The MRWMD also provides administrative offices, truck parking, and a maintenance shop building for the franchised waste hauler who serves many of the communities in the District. The District has a small anaerobic digestion system for food and organic waste.³

³ Additional information regarding MRWMD can be found at [http://www.mrwmd.org/](http://www.mrwmd.org/)
In February of 2018, the MRWMD commissioned its second generation MRF. This new MRF can process up to 80 tons per hour (tph) of C&D waste (40 tph), and single stream recyclables or select loads of commercial waste (40 tph). A schematic of the new MRF is provided in Figure 26. A video showing the operation of the MRF can be found on a website here. A descriptive video of the Last Chance Mercantile can be found on a website here.

The MRWMD General Manager Timothy Flannigan, Director of Operations Tim Brownell, Principal Engineer Guy Petraborg, and Director of Finance and Administration Peter Skinner spent about 2 hours with the tour group discussing a variety of operational and public policy issues. After the group discussion, a tour of the Last Chance Mercantile and the MRF was provided.

The District’s landfill has an estimated 100 plus years of useful life left. The landfill accepts approximately 2,200 tpd of MSW waste which includes residue from San Jose area MRFs. Total waste accepted by the landfill is approximately 3,000 tpd.
Monterey Regional Waste Management District

Materials Recovery Facility Improvement Project

SYSTEM COMPONENTS

Construction & Demolition Processing Line
Designed to process 40 tons per hour and recycle up to 44% of material processed including wood, metal, concrete, plastic, and dirt.

Mixed Waste Processing Line
Designed to process 40 tons per hour and recycle up to 44% of material processed from commercial sources including businesses and apartment buildings. Will recover glass, paper, cardboard, containers, metals, plastics, and organics.

Single Stream Recyclables Processing Line
Designed to process 30 tons per hour of mixed recyclables and will recycle up to 92% of material processed including paper, cardboard, plastic, containers, glass, and metal.

Figure 26 MRWMD System
Material Processing Site Visits

Figure 27 Last Chance Mercantile

Figure 28 For Sale

Figure 29 Goods for Sale

Figure 30 Household Hazardous Waste Give Away
Figure 31 C&D Waste Tipping Area

Figure 32 Single Stream Tipping Area

Figure 33 Feed Conveyors

Figure 34 Quality Control Picking
2.4. Zanker Recycling

The Zanker Recycling is a privately-owned company which operates three waste processing systems and a landfill at two sites in San Jose. The processing systems, and links to descriptive videos on websites, are:

- Clean construction waste recycling,
- Concrete recycling,
- Wood waste recycling,
- DM Reduction.

Zanker reports 3rd party verified material diversion rates as shown in Table 1.
## Table 1 Zanker Recycling Diversion Rates

<table>
<thead>
<tr>
<th>Material types</th>
<th>Counting Alternative Daily Cover Use</th>
<th>Without Alternative Daily Cover Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Waste</td>
<td>73.9%</td>
<td>54.4%</td>
</tr>
<tr>
<td>Wood Waste</td>
<td>96.7%</td>
<td>94.7%</td>
</tr>
<tr>
<td>Yard Waste Brush</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demolition</td>
<td>73.6%</td>
<td>24.8%</td>
</tr>
<tr>
<td>Mobile Homes</td>
<td>91.5%</td>
<td>89.1%</td>
</tr>
<tr>
<td>Wood shingles with paper</td>
<td>41.4%</td>
<td>13.4%</td>
</tr>
<tr>
<td>Sheetrock</td>
<td>99.1%</td>
<td>94.5%</td>
</tr>
<tr>
<td>Asphalt shingles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tar and gravel roofing</td>
<td>99.1%</td>
<td>94.5%</td>
</tr>
<tr>
<td>Concrete</td>
<td>54.4%</td>
<td>8.5%</td>
</tr>
<tr>
<td>Stucco and Plaster</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>54.4%</td>
<td>8.5%</td>
</tr>
</tbody>
</table>

### Figure 39 Demolition Recycling

### Figure 40 Demolition Wood Recycling
Material Processing Site Visits

Figure 41 Rubble Recycling

Figure 42 Demolition Recycling

Figure 43 Biomass Recycling

Figure 44 Clean Construction Waste Recycling
2.5. Zero Waste Development Company

As a part of the Zanker visit, the group toured an affiliated facility, Zero Waste Development (ZWED), which utilizes a dry anaerobic digestion technology to process up to 90,000 tpy of organic waste from the City of San Jose. The ZWED facility was developed by the owners of GreenWaste and Zanker Recycling. The feedstock for the facility is supplied from the City of San Jose through Republic Services.

Methane gas generated by the anaerobic digestion process is captured and used as fuel to produce electric power for the facility and the adjacent Zanker Recycling operations. Digestate from the process is taken to Z-Best in Gilroy, CA where it is processed into agricultural grade compost.

The facility employs a dry digestion technology from known as SMARTFERM. With this technology, organic material is stacked into sealed tunnels and treated with a bacteria laden percolate. The material partially decays over a 21-day period, releasing methane gas which is captured, filtered and used to make electricity in a reciprocating engine. Alternatively, the methane can be further processed into transportation grade renewable natural gas. A descriptive video of the process can be found on a website [here](http://zerowasteenergy.com/).

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4 More about ZWED can be found at [http://zerowasteenergy.com/](http://zerowasteenergy.com/).
Figure 47 ZWED Facility

Figure 48 SMARTFERM Tunnels
2.6. Newby Island Resource Recovery Park

Newby Island is owned and operated by Republic Services. It consists of four material lines capable of processing over 400,000 tons per year (tpy). When it opened in 2012, the facility was one of the largest, most sophisticated MRF’s in the world. Videos showing the operation of Newby Island can be found on websites here and here.

Our tour was led by Anthony Wright, Facility Manager. The facility was in full operation during our tour.

While the facility has been able to sell its higher value recovered materials, it was reported that the China waste bans was affecting the sale of lower quality recovered fiber grades such as Old News Print (ONP) and Mixed Paper (MP). There appeared to be a large inventory of bales of ONP and MP on site.

No photography was allowed

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5 For additional information regarding the Newby Island site see http://local.republicservices.com/site/newby-island
Sustainable Business Park Master Plan

APPENDIX I

Threatened and Endangered Species Evaluation – Public Works Resource Park: Byron Township in Kent County, and Dorr Township in Allegan County, Michigan
December 7, 2017  
Project No. 171565

Mr. Darwin Baas, Director  
Kent County Department of Public Works  
1500 Scribner Avenue, NW  
Grand Rapids, MI 49504

Re: Threatened and Endangered Species Evaluation – Public Works Resource Park  
Byron Township in Kent County, and Dorr Township in Allegan County, Michigan

Dear Mr. Baas:

On October 10, 2017, Fishbeck, Thompson, Carr & Huber, Inc. (FTCH) staff conducted a field investigation on approximately 250 acres of property located in Byron Township in Kent County, and Dorr Township in Allegan County, Michigan (the Site) (see Figure 1). The intent of the investigation was to evaluate for the presence of state and federal threatened and endangered (T&E) species. The Site is primarily located in the Southwest Quarter of Section 36 of Byron Township (Town 5 North, Range 12 West) and the West Half of Section 1 of Dorr Township (Town 4 North, Range 12 West). These areas are bounded by a railroad embankment and the South Kent Landfill to the north; US-131 to the east; 146th Avenue and agricultural land to the south; and Clyde Park Avenue/14th Street and agricultural land to the west. The area of investigation also included an approximately 7.25-acre parcel located northwest of the Clyde Park Avenue/104th Street intersection (Area A).

The T&E investigation consisted of a review of the Michigan Natural Features Inventory (MNFI) T&E species database and the U.S. Fish & Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website. The MNFI database was searched for known occurrences of protected species within 1.5 miles of the area of investigation. The IPaC listing noted federally protected species known to occur within Kent and Allegan Counties. FTCH evaluated existing habitats present on the Site and compared them to the required habitat for listed protected species.

Database Review

Table 1 summarizes the results of the database review. Attachment 1 contains documentations received from the MNFI, including:

- Tables summarizing all known occurrences of legally protected species and special concern species within 1.5 miles of the area of investigation.
- Comments for projects involving federal funding or a federal agency authorization.

Table 1 notes the required habitat for all of the listed T&E and special concern species. The table’s last column evaluates the likelihood that these species are present at the Site, based upon whether appropriate habitat for these species is present.

MNFI Review

The MNFI database review identified no known occurrences of federal threatened or endangered species or state threatened species within the search area. It identified one state endangered species, Virginia bluebells (Mertensia virginica), which was last observed at two locations in 1889 and 1901, respectively. Two state special concern species were also noted: climbing fumitory (Adlumia fungosa), a plant which was last observed in 1889;
and copper button (*Mesomphix cupreus*), a land snail which had no observation date. None of the special concern species are protected by the state or federal Endangered Species Acts; therefore, state or federal approval of work activities which may or may not impact these species is not required. The MNFI letter stated that the observation records for Virginia bluebells are historic and/or well away from the Site, so it is not likely negative impacts to these species will occur as a result of site development.

Regarding federal endangered and threatened species known to occur in Kent and Allegan Counties, the MNFI documents note that suitable habitat for the Indiana bat, northern long-eared bat (NLEB), and eastern massasauga rattlesnake (EMR) appears to be present within the 1.5-mile search buffer, while suitable habitat for the Karner blue butterfly, snuffbox mussel, Pitcher’s thistle, and rufa red knot (a bird) does not appear to be present.

**IPaC Review**

Attachment 2 contains the IPaC Resource List for the Site. The six federally protected species known to occur in Allegan County and the five federally protected species known to occur in Kent County are summarized in Table 1. Four of these species are listed for both counties. The site evaluation was tailored to the specific Site habitat present in Allegan County (for the Allegan County listed species) and the Site habitat present in Kent County (for the Kent County listed species).

Two bat species are listed in Table 1: the Indiana bat (*Myotis sodalist*) and NLEB (*Myotis septentrionalis*). The Indiana bat roosts and forms maternal colonies in the floodplain forest and adjacent savanna and upland forest. The NLEB roosts in both upland and wetland forest. Both species roost under loose bark or in hollows and cavities of mature deciduous trees, especially in dead trees. There are no known hibernacula or roost trees for the NLEB within either Allegan or Kent Counties.

The IPaC review indicated the Site is located within the range of the EMR (*Sistrurus catenatus catenatus*). However, the Site is not located in Tier 1 Habitat (i.e., areas known to be occupied by the EMR or highly likely to be occupied by the EMR) or in Tier 2 Habitat (areas with a high potential habitat and may be occupied by the EMR). In southern Michigan, EMR populations are typically associated with open wetlands, particularly prairie fens. They require a landscape composed of open, sunny areas and shaded areas; variable elevations between adjoining lowland and upland habitats; and the presence of the water table near the surface for hibernation.

The Pitcher’s thistle (*Cirsium pitcheri*) is endemic to Great Lakes shorelines, where it is found on open sand dunes with sparse vegetation. This habitat is not present on the Site. The rufa red knot (*Calidris canutus rufa*) is a bird that flies along the Lake Michigan shoreline between May 1 and September 30, as it migrates more than 9,300 miles each spring and fall between wintering and breeding grounds. The Site is not located along a Great Lakes shoreline; therefore, appropriate habitat for rufa red knot is not present. The Karner blue butterfly (*Lycaeides melissa samuelis*) feeds exclusively on wild lupine, which is not present on the Site.

The snuffbox mussel (*Epioblasma triquetra*) is found in small (3rd to 4th order) to medium-sized rivers (5th to 6th order) in areas with a swift current. It inhabits sand, gravel, or cobble substrates in riffles. The Site contains two 1st order streams: Buck Creek and Red Run Drain.

**Site Investigation**

FTCH conducted a meander survey on October 10, 2017, and characterized Site habitat. An inventory of plant species was completed for each plant community, as summarized in Table 2. Table 2 also notes whether observed plants are native or non-native and their wetland coefficient (W). Species with indicator statuses of
obligate wetland (-5), facultative wetland (-3), and facultative (0) are considered wetland species by the US Army Corps of Engineers and the Michigan Department of Environmental Quality (MDEQ). Species with indicator statuses of facultative upland (3) and upland (5) are considered upland species. Facultative species are also commonly present in upland plant communities.

Plant communities and land cover observed onsite are noted in Figure 1. Photographs are included as Attachment 3. A brief description of the Site conditions follows.

**Agricultural Fields**

Much of the Site contained fields which were actively farmed with row crops (corn or soybeans) or as hayfields. A large field at the south end of the Site did not contain a crop, but was freshly tilled. Agricultural fields are shaded green on Figure 1. Windbreaks were observed along the field edges; these consisted of mature trees, including blue spruce, basswood, box elder, sugar maple, bur oak, and white pine.

**Old Field (including Area C)**

The second most common land use at the Site consisted of abandoned agricultural fields, which were observed northeast of the Clyde Park Avenue/108th Street intersection and north of 146th Avenue. These areas are shaded yellow on Figure 1. The old field areas contained a mixture of native plant species and common Eurasian weeds. These areas primarily consisted of herbaceous species; however, native pioneer tree species were also observed. Over time, these areas may convert to forest. Area C also contained an inclusion of scrub-shrub wetland.

**Current and Former Residential Property (including Area G)**

Based upon aerial photographs dating back to 1999, accessed through Google Earth, the Site contains twelve former residential lots and one existing residence. These areas are noted in pink on Figure 1. The previously developed lots formerly contained houses, barns, and sheds. All of these sites have reverted to old field plant communities, with residual foundation plantings, including crabapple, silver maple, and eastern cottonwood trees. An inclusion of scrub-shrub wetland dominated by sandbar willow was also present in Area G.

**Former Tree Nursery**

A former tree nursery was present in the area hatched with yellow on Figure 1. Old field herbaceous species were observed throughout the nursery.

**Area A: Landfill Operations**

The approximately 7.25-acre parcel located northwest of the Clyde Park Avenue/104th Street intersection is located directly south of a closed landfill and was surrounded by a locked security fence. Area A is shaded purple on Figure 1. It contained mowed turf, three storm water detention basins, and a row of conifer trees. This area appeared to support landfill operations.

**Floodplain and Associated Forest (including Area B)**

Most of the Site is located directly south of the active South Kent Landfill. Buck Creek flows along the northern edge of this area and exits at the Site’s northwest corner. The creek bed meandered and was incised, with steep banks 6 to 8 feet high. Limited forested wetland was present within the floodplain and was dominated by box elder (*Acer negundo*). Mesic forest dominated by sugar maple and box elder was observed on the surrounding banks and terraces. The terrace contained a prevalence of shrubs and brambles, both native (sandbar willow, prickly-ash, black raspberry, grey dogwood) and non-native/invasive (tartarian honeysuckle, multiflora rose).
Additional forested\scrub-shrub wetland was present adjacent to the Red Run Drain, at the south end of the Site. All of the above areas are shaded blue on Figure 1.

**Area D: MDEQ Wetland Conservation Easement**

A 0.66-acre MDEQ wetland mitigation conservation easement is present at the north end of the Site at Area D. The area is demarcated by signs around its perimeter, which stated:

*MDEQ Wetland Conservation Easement
No Mowing, Dumping, Construction, Dredging, Cutting*

Area D consisted of meadow dominated by non-native upland herbaceous species. The Agreement for Conservation Easement is included as Attachment 4. It prohibits altering or developing the conservation easement in any way.

**Area E: Deciduous Forest**

The Site contained approximately 11.75 acres of high-quality mature deciduous forest within Area E, shaded in orange on Figure 1. The forest extended offsite to the north, up to the railroad embankment. The mesic forest contained an open understory, a low density of non-native species and a high density of native trees characteristic of mesic southern forest. Large specimens of red oak, bitternut hickory, and sugar maple were observed within the forest (see photograph in Attachment 2).

Area E sloped down to the northeast and contained meandering shallow ravines and a series of unvegetated depressions with flat bottoms. Many of these low areas were surrounded with spicebush (*Lindera benzoin*), a wetland species. It is likely these depressions are vernal pools, a unique landscape feature. Vernal pools experience cyclic periods of water inundation and drying, typically filling with water in the spring or fall and drying during the summer or in drought years (Thomas, et.al., 2010). Though relatively small, and sometimes overlooked, vernal pools provide critical habitat for many plants and animals.

**Area F: Scrub-Shrub Wetland**

A small scrub-shrub wetland was observed at the southeast corner of an agricultural field at Area F. Sandbar willow (*Salix exigua*) was the dominant species observed within the wetland.

**Area H: Emergent Wetland**

A small emergent wetland dominated by reed canarygrass (*Phalaris arundinacea*) was observed at the east end of the old field at the south end of the Site.

**Red Run Drain**

Red Run Drain traversed the old field and former tree nursery in the southern portion of the Site. It contained a linear wetland vegetated with emergent herbaceous species, with occasional sandbar willow and dogwood shrubs.

**Conclusions**

The MNFI database review identified one state endangered species: Virginia bluebells (*Mertensia virginica*), which was last observed at two locations in 1889 and 1901, respectively. The MNFI letter stated that the observation records for Virginia bluebells are historic and/or well away from the Site, so it is not likely negative impacts to this species will occur as a result of site development. Virginia bluebells are found in the first and
second floodplain bottoms of riparian forests. Area B contained limited potential habitat for Virginia bluebells, due to the incised nature of Buck Creek. Virginia bluebells were not observed on the Site, and are unlikely to be present due to lack of appropriate habitat.

Areas B and E provides suitable habitat for the Indiana bat and NLEB due to their proximity to Buck Creek and the presence of dead trees and trees with loose, flaking bark (such shagbark hickory, bur oak, and red oak). Tree removal conducted within the forested areas between October 1 and March 31 would ensure no adverse impact to federally protected bat species, because bats would not be roosting in the forest at that time of year.

Both Buck Creek and Red Run Drain are first order streams. Therefore, they do not provide appropriate habitat for snuffbox mussel because the creeks are too small. EMR is not likely to present on the Site due to the limited extent of site wetlands. No other federal or state protected species are likely to be present at the Site, due to lack of appropriate habitat.

Although it is not likely the Site contains state and federal T&E species, it does have several sensitive natural features, including Buck Creek, with an adjacent forested buffer; high-quality mesic southern forest; and possible vernal pools. FTCH recommends efforts to protect the integrity of these areas because they provide valuable natural functions, including storm water treatment and management, wildlife habitat, and groundwater recharge. In addition, development is prohibited in the MDEQ wetland conservation easement.

If you have any questions or require additional information, please contact me at 616.464.3738 or email ehtripp@ftch.com.

Sincerely,

FISHBECK, THOMPSON, CARR & HUBER, INC.

Elise Hansen Tripp, PWS

Ilk
Attachments
By email

Reference

Tables
Table 1. Summary of Listed Threatened and Endangered Species
Kent County Resource Park, Kent and Allegan Counties, Michigan

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Category</th>
<th>Year Last Observed</th>
<th>Habitat</th>
<th>Likelihood of Project Impacting Species</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Section 36 of Byron Township, Kent County, and Section 1 of Dorr Township, Allegan County:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adlumia fungosa</td>
<td>Climbing fumitory</td>
<td>SC</td>
<td>Plant</td>
<td>1889</td>
<td>Occurs in gravelly or rocky Great Lakes shores, woods, thickets, glades, mesic southern forests and in dune complexes. This species requires soil disturbance.</td>
<td>Unlikely due to lack of soil disturbance within mesic forest and lack of other required habitat.</td>
<td></td>
</tr>
<tr>
<td>Mertensia virginica</td>
<td>Virginia bluebells</td>
<td>E</td>
<td>Plant</td>
<td>1889, 1901</td>
<td>First and second floodplain bottoms of riparian forests.</td>
<td>Unlikely due to historic record and lack of habitat.</td>
<td></td>
</tr>
<tr>
<td>Mesembrinum cupreus</td>
<td>Copper button</td>
<td>SC</td>
<td>Land snail</td>
<td>Found in leaf litter in mesic to dry-mesic forests with calcareous soils</td>
<td>Unlikely due to lack of calcareous soil.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Federally Protected Species within Allegan County:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calidris canutus rufa</td>
<td>Rufa red knot</td>
<td>T</td>
<td>Bird</td>
<td>Coastal areas. Migrates through Michigan between May 1 and September 30.</td>
<td>Not likely due to lack of shoreline and sandy beach.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cirius pitches</td>
<td>Pitcher's thistle</td>
<td>T</td>
<td>T</td>
<td>Great Lakes shorelines, where it is found on open sand dunes with sparse vegetation (stabilized dunes and blowout areas).</td>
<td>Not likely due to lack of Great Lakes shoreline.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lycaeides melissa samuelis</td>
<td>Karner blue butterfly</td>
<td>E</td>
<td>T</td>
<td>Open canopy barrens, including oak and oak-pine savanna. Feeds exclusively on wild lupine.</td>
<td>Not likely due to lack of open canopy barrens and wild lupine.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myotis septentrionalis</td>
<td>Northern long-eared bat</td>
<td>T</td>
<td>SC</td>
<td>Mammal</td>
<td>Hibernates in caves and mines, swimming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.</td>
<td>Possible impact within Area E, unless trees are removed between October 1 and March 31.</td>
<td></td>
</tr>
<tr>
<td>Myotis sodalis</td>
<td>Indiana bat</td>
<td>E</td>
<td>E</td>
<td>Mammal</td>
<td>Roosts and forms maternity colonies under loose bark or in hollows and cavities of mature trees in the floodplain forest and adjacent savanna and upland forest.</td>
<td>Possible impact within Area E, unless trees are removed between October 1 and March 31.</td>
<td></td>
</tr>
<tr>
<td>Sistrurus catenatus catenatus</td>
<td>Eastern massasauga</td>
<td>T</td>
<td>SC</td>
<td>Snake</td>
<td>A variety of wetland habitats containing: open, sunny areas intermixed with shaded areas, presumably for thermoregulation; presence of the water table near the surface for hibernation; and variable elevations between adjoining lowland and upland habitats. Habitats include bogs, fens, shrub swamps, wet meadows, marshes, moist grasslands, wet prairies, and floodplain forest. In warmer months, some snakes move to upland shrubby fields and grasslands, including pastures and hay fields.</td>
<td>Not likely due to lack of habitat. Limited wetlands are present on the Site.</td>
<td></td>
</tr>
</tbody>
</table>
Table 1. Summary of Listed Threatened and Endangered Species
Kent County Resource Park, Kent and Allegan Counties, Michigan

<table>
<thead>
<tr>
<th>Scientific Name</th>
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<th>Year Last Observed</th>
<th>Habitat</th>
<th>Likelihood of Project Impacting Species</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Epioblasma triquetra</em></td>
<td>Snuffbox</td>
<td>E</td>
<td>E</td>
<td>Mussel</td>
<td>2012</td>
<td>Small to medium-sized rivers in areas with a swift current and some larger rivers. Gravel substrate is needed in mainstem stream (3rd-4th order), Riffle, and river (5th-6th order), Riffle</td>
<td>Not likely due to lack of habitat. Buck Creek and Red Run are 1st order streams.</td>
</tr>
<tr>
<td><em>Lycaeides melissa samuelis</em></td>
<td>Karner blue butterfly</td>
<td>E</td>
<td>T</td>
<td>Insect</td>
<td>2012</td>
<td>Open canopy barrens, including oak and oak-pine savanna. Feeds exclusively on wild lupine.</td>
<td>Not likely due to lack of open canopy barrens and wild lupine.</td>
</tr>
<tr>
<td><em>Myotis septentrionalis</em></td>
<td>Northern long-eared bat</td>
<td>T</td>
<td>SC</td>
<td>Mammal</td>
<td></td>
<td>Hibernates in caves and mines, swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.</td>
<td>Possible impact within Area B, unless trees are removed between October 1 and March 31.</td>
</tr>
<tr>
<td><em>Myotis sodalis</em></td>
<td>Indiana bat</td>
<td>E</td>
<td>E</td>
<td>Mammal</td>
<td></td>
<td>Roosts and forms maternity colonies under loose bark or in hollows and cavities of mature trees in the floodplain forest and adjacent savanna and upland forest.</td>
<td>Possible impact within Area B, unless trees are removed between October 1 and March 31.</td>
</tr>
<tr>
<td><em>Sistrurus catenatus catenatus</em></td>
<td>Eastern massasauga</td>
<td>T</td>
<td>SC</td>
<td>Snake</td>
<td>2006</td>
<td>A variety of wetland habitats containing: open, sunny areas intermixed with shaded areas, presumably for thermoregulation; presence of the water table near the surface for hibernation; and variable elevations between adjoining lowland and upland habitats. Habitats include bogs, fens, shrub swamps, wet meadows, marshes, moist grasslands, wet prairies, and floodplain forest. In warmer months, some snakes move to upland shrubby fields and grasslands, including pastures and hay fields.</td>
<td>Not likely due to lack of habitat. Limited wetlands are present on the Site.</td>
</tr>
</tbody>
</table>

Notes: E=Endangered, T=Threatened, SC=Special Concern
<table>
<thead>
<tr>
<th>Area</th>
<th>Plant Community Type</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Physiognomy</th>
<th>Native?</th>
<th>W</th>
</tr>
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<tbody>
<tr>
<td>Area B</td>
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<td>-3</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>Forb</td>
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<tr>
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<tr>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Area B</td>
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<td>3</td>
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<tr>
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<td>Bromus inermis</td>
<td>smooth brome</td>
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<td>Forb</td>
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<td>Phleum pratense</td>
<td>timothy</td>
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<td>Populus deltoides</td>
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### Table 2 - Summary of Observed Plant Species
Kent County Resource Park, Kent and Allegan Counties, Michigan

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<tr>
<th>Area</th>
<th>Plant Community Type</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Physiognomy</th>
<th>Native?</th>
<th>W</th>
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<tr>
<td>Area C,</td>
<td>Old Field</td>
<td>Rhus typhina</td>
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<td>Native</td>
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<td></td>
<td>Vitis riparia</td>
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<td>Queen-Anne’s-lace</td>
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<td>Tree</td>
<td>Native</td>
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<td>Tilia americana</td>
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<td>Toxicodendron radicans</td>
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<td>Vine</td>
<td>Native</td>
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<tr>
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<td>Zanthoxylum americanum</td>
<td>prickly-ash</td>
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<td>Area F</td>
<td>Scrub-shrub Wetland</td>
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<td>Bidens frondosa</td>
<td>common beggar-ticks</td>
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<td>Cornus sericea; c. stolonifera</td>
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<td>Dipsacus fullonum</td>
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<td>Forb</td>
<td>Non-native</td>
<td>3</td>
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<td>Fraxinus pennsylvanica</td>
<td>red ash</td>
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<td>Phalaris arundinacea</td>
<td>reed canary grass</td>
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<td>-3</td>
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<td>prickly-ash</td>
<td>Shrub</td>
<td>Native</td>
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</tbody>
</table>

Notes: W = wetland coefficient. Obligate wetland = -5, facultative wetland = -3, facultative = 0, facultative upland = 3, upland = 5.
Elise Tripp, PWS
Fishbeck Thomson, Carr & Huber, Inc.
1515 Arboretum Drive, SE,
Grand Rapids, MI 49546

September 21, 2017

Re: Rare Species Review #2032 –Resource Park, Allegan and Kent County, MI (T04N, R12W Section 1 and T05N R12W Section 36).

Ms. Tripp:

The location for the proposed project was checked against known localities for rare species and unique natural features, which are recorded in the Michigan Natural Features Inventory (MNFI) natural heritage database. This continuously updated database is a comprehensive source of existing data on Michigan’s endangered, threatened, or otherwise significant plant and animal species, natural plant communities, and other natural features. Records in the database indicate that a qualified observer has documented the presence of special natural features. The absence of records in the database for a particular site may mean that the site has not been surveyed. The only way to obtain a definitive statement on the status of natural features is to have a competent biologist perform a complete field survey.

Under Act 451 of 1994, the Natural Resources and Environmental Protection Act, Part 365, Endangered Species Protection, “a person shall not take, possess, transport, …fish, plants, and wildlife indigenous to the state and determined to be endangered or threatened,” unless first receiving an Endangered Species Permit from the Michigan Department of Natural Resources (MDNR), Wildlife Division. Responsibility to protect endangered and threatened species is not limited to the lists below. Other species may be present that have not been recorded in the database.

Two occurrences of a legally protected species have been documented within 1.5 miles of this activity. However, these records are Historic and/or well away from the project site, so it is not likely negative impacts will occur. Keep in mind that MNFI cannot fully evaluate this project without visiting the project site. MNFI offers several levels of Rare Species Reviews, including field surveys which I would be happy to discuss with you.

Sincerely,

Daria A. Hyde
Conservation Planner/Zoologist
Michigan Natural Features Inventory
Comments for Rare Species Review #2032: It is important to note that it is the applicant’s responsibility to comply with both state and federal threatened and endangered species legislation. Therefore, if a state listed species occurs at a project site, and you think you need an endangered species permit please contact: Lori Sargent, Nongame Wildlife Biologist, Wildlife Division, Michigan Department of Natural Resources, P.O. Box 30444, Lansing, MI 48909, 517-284-6216, or SargentL@michigan.gov. If a federally listed species is involved and, you think a permit is needed, please contact Carrie Tansy Endangered Species Program, U.S. Fish and Wildlife Service, East Lansing office, 517-351-8375, or Carrie_Tansy@fws.gov.

Please consult MNFI’s Rare Species Explorer for additional information on survey methods and management recommendation regarding the listed species.

Table 1: Legally protected species within 1.5 miles of RSR# 2032

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<tr>
<th>ELCAT</th>
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<th>SCOMNAME</th>
<th>USESA</th>
<th>SPROT</th>
<th>G_RANK</th>
<th>S_RANK</th>
<th>FIRSTOBS</th>
<th>LASTOBS</th>
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<td>Plant</td>
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<td>Virginia bluebells</td>
<td>E</td>
<td>G5</td>
<td>S1S2</td>
<td></td>
<td>1901</td>
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<tr>
<td>Plant</td>
<td><em>Mertensia virginica</em></td>
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<td>G5</td>
<td>S1S2</td>
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Table 2: Special concern species, natural communities and other rare features within 1.5 miles of #2032

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<th>ELCAT</th>
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<th>SCOMNAME</th>
<th>USESA</th>
<th>SPROT</th>
<th>G_RANK</th>
<th>S_RANK</th>
<th>FIRSTOBS</th>
<th>LASTOBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant</td>
<td><em>Adlumia fungosa</em></td>
<td>Climbing fumitory</td>
<td>SC</td>
<td>G4</td>
<td>S3</td>
<td></td>
<td>1889</td>
<td>1889-07-19</td>
</tr>
<tr>
<td>Animal</td>
<td><em>Mesomphix cupreus</em></td>
<td>Copper button</td>
<td>SC</td>
<td>G5</td>
<td>S1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Special concern species and natural communities are not protected under endangered species legislation but efforts should be taken to minimize any or all impacts. Species classified as special concern are species whose numbers are getting smaller in the state. If these species continue to decline they would be recommended for reclassification to threatened or endangered status.
**Codes to accompany Tables:**

**State Protection Status Code Definitions (SPROT)**

E: Endangered  
T: Threatened  
SC: Special concern

**Federal Protection Status Code Definitions (USES A)**

LE = listed endangered  
LT = listed threatened  
LELT = partly listed endangered and partly listed threatened  
PDL = proposed delist  
E(S/A) = endangered based on similarities/appearance  
PS = partial status (federally listed in only part of its range)  
C = species being considered for federal status

**Global Heritage Status Rank Definitions (GRANK)**

The priority assigned by NatureServe's national office for data collection and protection based upon the element's status throughout its entire world-wide range. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.

G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences range-wide or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 = imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3: Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single western state, a physiographic region in the East) or because of other factor(s) making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.

G4: Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5: Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

Q: Taxonomy uncertain

**State Heritage Status Rank Definitions (SRANK)**

The priority assigned by the Michigan Natural Features Inventory for data collection and protection based upon the element's status within the state. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.

S1: Critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.

S2: Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.

S3: Rare or uncommon in state (on the order of 21 to 100 occurrences).

S4 = apparently secure in state, with many occurrences.

S5 = demonstrably secure in state and essentially ineradicable under present conditions.

SX = apparently extirpated from state.
For projects involving Federal funding or a Federal agency authorization

The following information is provided to assist you with Section 7 compliance of the Federal Endangered Species Act (ESA). The ESA directs all Federal agencies "to work to conserve endangered and threatened species. Section 7 of the ESA, called "Interagency Cooperation," is the means by which Federal agencies ensure their actions, including those they authorize or fund, do not jeopardize the existence of any listed species."

The proposed project falls within the range of seven (7) federally listed/proposed species which have been identified by the U.S. Fish and Wildlife Service (USFWS) to occur in Allegan and Kent County, Michigan:

**Federally Endangered**

**Indiana bat** – there appears to be suitable habitat within the 1.5-mile search buffer. Indiana bats (*Myotis sodalis*) are found only in the eastern United States and are typically confined to the southern three tiers of counties in Michigan. Indiana bats that summer in Michigan winter in caves in Indiana and Kentucky. This species forms colonies and forages in riparian and mature floodplain habitats. Nursery roost sites are usually located under loose bark or in hollows of trees near riparian habitat. Indiana bats typically avoid houses or other artificial structures and typically roost underneath loose bark of dead elm, maple and ash trees. Other dead trees used include oak, hickory and cottonwood.

Foraging typically occurs over slow-moving, wooded streams and rivers as well as in the canopy of mature trees. Movements may also extend into the outer edge of the floodplain and to nearby solitary trees. A summer colony's foraging area usually encompasses a stretch of stream over a half-mile in length. Upland areas isolated from floodplains and non-wooded streams are generally avoided.

**Conservation strategies:** The suggested seasonal tree cutting range for Indiana bat is between October 1 and March 31 (i.e., no cutting April 1-September 30). This applies throughout the Indiana bat range in Michigan.

**Karner blue butterfly** – there does not appear to be suitable habitat within the 1.5-mile search buffer. The Karner blue butterfly (*Lycaeides melissa samuelis*) inhabits open-canopied barrens communities, including oak and oak-pine savanna or barrens found prior to European settlement. Since their historical habitat suffers from fire suppression efforts and land use change, the butterfly often occurs in openings, old fields, and right-of-ways. Karner blue larvae feed exclusively on wild lupine (*Lupinus perennis*), which severely restricts where these butterflies can survive. Lupine, an early successional species, can become abundant after appropriate disturbances. Adults visit a wide variety of flowering plants for nectar.

The Karner blue has two generations per year, with the later, or summer, generation typically having three to four times the number of adults as the earlier, or spring, brood. Adults are active most of the day, decreasing activity during midday and during cool, rainy weather. Females can live up to two weeks in the field, but typically live an average of five days. Peak flight dates are mid-May through early June and mid-July through early August, with stragglers found between.
Karner blue butterflies occur in only seven states ranging from New Hampshire to Minnesota, with Michigan and Wisconsin supporting the greatest number of butterflies and butterfly sites. Primary limiting factors include illegal collecting and habitat loss due to land development and lack of natural disturbances, such as a large animal grazing and wildfire.

**Snuffbox** – there does not appear to be suitable habitat within the 1.5-mile search buffer. Snuffbox mussels (*Epioblasma triquetra*) inhabit rivers and streams with cobble, gravel, or sand bottoms in swift currents and usually are deeply buried in the substrate. Freshwater mussels require a fish host to complete their life cycle. Eggs are fertilized and develop into larvae within the gills of the female mussel. These larvae, called glochidia, are released into the water and must attach to a suitable fish host to survive and transform into the adult mussel. In Michigan, the only host fish known for snuffbox is the log perch (*Percina caprodes*). In other parts of their range the banded sculpin (*Cottus carolinae*) is also a known host. After completing the parasitic stage and reaching adulthood, this mussel remains relatively sessile on the river bottom, living between 8-10 years. The best time to survey for snuffbox is April through September.

**Federally Threatened**

**Northern long-eared bat** - although no known hibernacula or roost trees have been documented within 1.5 miles of the project area, this activity occurs within the designated WNS zone (i.e., within 150 miles of positive counties/districts impacted by WNS. In addition, suitable habitat does exist in and outside of our 1.5 mile search buffer. The USFWS has prepared a dichotomous key to help determine if this action may cause prohibited take of this bat. Please consult the USFWS Endangered Species Page for more information.

Northern long-eared bat (*Myotis septentrionalis*) numbers in the northeast US have declined up to 99 percent. Loss or degradation of summer habitat, wind turbines, disturbance to hibernacula, predation, and pesticides have contributed to declines in Northern long-eared bat populations. However, no other threat has been as severe to the decline as White-nose Syndrome (WNS). WNS is a fungus that thrives in the cold, damp conditions in caves and mines where bats hibernate. The disease is believed to disrupt the hibernation cycle by causing bats to repeatedly awake thereby depleting vital energy reserves. This species was federally listed in May 2015 primarily due to the threat from WNS.

Also called northern bat or northern myotis, this bat is distinguished from other *Myotis* species by its long ears. In Michigan, northern long-eared bats hibernate in abandoned mines and caves in the Upper Peninsula; they also commonly hibernate in the Tippy Dam spillway in Manistee County. This species is a regional migrant with migratory distance largely determined by locations of suitable hibernacula sites.

Northern long-eared bats typically roost and forage in forested areas. During the summer, these bats roost singly or in colonies underneath bark, in cavities or in crevices of both living and dead trees. These bats seem to select roost trees based on suitability to retain bark or provide cavities or crevices. Common roost trees in southern Lower Michigan included species of ash, elm and maple. Foraging occurs primarily in areas along woodland edges, woodland clearings and over small woodland ponds. Moths, beetles and small flies are common food items. Like all temperate bats this species typically produces only 1-2 young per year.

**Conservation strategies:** When there are no known roost trees or hibernacula in the project area, we encourage you to conduct tree-cutting activities and prescribed burns in forested areas during October 1 through March 31 when possible, but you are not required by the ESA to do so. When that is not possible, we encourage you to remove trees prior to June 1 or after July 31, as that will help to protect young bats that may be in forested areas, but are not yet able to fly.
**Pitcher's thistle** – there does not appear to be suitable habitat within the 1.5-mile search buffer. Pitcher’s thistle (*Cirsium pitcheri*) grows on the open and grassland sand dunes and along the shorelines of Lakes Michigan, Superior and Huron. It is occasionally found on lag gravel associated with dunes. It is mainly found in near-shore plant communities but can also grow in all non-forested areas of a dune system. This monocarpic (once-flowering) plant produces a rosette that will mature to flowering in 2-8 years, after which the plant dies. Seeds germinate in June, and most seedlings (rosettes) appear within 1-3 meters of parent plants. The taproot of this thistle, which can reach 2 m in length, enhances its ability to survive the often desiccating conditions of its dune habitat. Pitcher’s thistle blooms from approximately late-June to early September. The blooms are pollinated by insects mainly bees; some thirty insect species have been observed visiting the blooms.

**Rufa red knot** – there does not appear to be suitable habitat within the 1.5-mile search buffer. The rufa red knot is one of the longest-distance migrants in the animal kingdom, flying some 18,000 miles annually between its breeding grounds in the Canadian Arctic to the wintering grounds at the southern-most tip of South America. Primarily occurring along the Atlantic and Gulf coasts, small groups of this shorebird regularly use the interior of the United States such as the Great Lakes during the annual migration. The Great Lakes shorelines provide vital stopover habitat for resting and refueling during their long annual journey.

The largest concentration of rufa red knots is found in May in Delaware Bay, where the birds stop to gorge on the eggs of spawning horseshoe crabs; a spectacle attracting thousands of birdwatchers to the area. In just a few days, the birds nearly double their weight to prepare for the final leg of their long journey to the Arctic. This species may be especially vulnerable to climate change which affects coastal habitats due to rising sea levels.

**Eastern massasauga rattlesnake** – there appears to be suitable habitat within the 1.5-mile search buffer. Michigan’s only venomous snake is found in a variety of wetland habitats including bogs, fens, shrub swamps, wet meadows, marshes, moist grasslands, wet prairies, and floodplain forests. Eastern massasaguas (*Sistrurus catenatus catenatus*) occur throughout the Lower Peninsula, but are not found in the Upper Peninsula. Populations in southern Michigan are typically associated with open wetlands, particularly prairie fens, while those in northern Michigan are better known from lowland coniferous forests, such as cedar swamps. These snakes normally overwinter in crayfish or small mammal burrows often close to the groundwater level and emerge in spring as water levels rise. During late spring, these snakes move into adjacent uplands they spend the warmer months foraging in shrubby fields and grasslands in search of mice and voles, their favorite food.

Often described as “shy and sluggish”, these snakes avoid human confrontation and are not prone to strike, preferring to leave the area when they are threatened. However, like any wild animal, they will protect themselves from anything they see as a potential predator. Their short fangs can easily puncture skin and they do possess potent venom. Like many snakes, the first human reaction may be to kill the snake, but it is important to remember that all snakes play vital roles in the ecosystem. Some may eat harmful insects. Others like the massasauga, consider rodents a delicacy and help control their population. Snakes are also a part of a larger food web and can provide food to eagles, herons, and several mammals.

Any sightings of these snakes should be reported to the Michigan Department of Natural Resources, Wildlife Division. Reports can be submitted online at: Eastern Massasauga Observation Report. If possible, a photo of the live snake is also recommended.
USFWS Section 7 Consultation Technical Assistance can be found at:
https://www.fws.gov/midwest/endangered/section7/s7process/index.html

The website offers step-by-step instructions to guide you through the Section 7 consultation process with prepared templates for documenting “no effect.” as well as requesting concurrence on "may affect, but not likely to adversely affect" determinations.

Please let us know if you have questions.

Daria Hyde
Conservation Planner/Zoologist
hydeda@msu.edu
517-284-6189
Attachment 2
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as trust resources) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME
Kent County Resource Park

LOCATION
Allegan and Kent counties, Michigan

DESCRIPTION
The project consists of development of a Resource Park by the Kent County Department of Public Works. The Resource Park will house facilities to recover discarded materials, reuse and recycle recovered materials, and convert non-recyclable material into intermediate products or recover the energy value of those discards. The approximately 200-acre site primarily consists of farmland and contains a couple forested areas. Buck Creek is located at the north end of the site and Red Run Drain is located at the south end of it. The site is located in
Dorr Township, Allegan County, and Byron Township, Kent County, Michigan

Local office

Michigan Ecological Services Field Office

📞 (517) 351-2555
✉️ (517) 351-1443

2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360

http://www.fws.gov/midwest/endangered/section7/s7process/step1.html
Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species

1 are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Mammals

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indiana Bat</td>
<td>Endangered</td>
</tr>
</tbody>
</table>

There is final critical habitat for this species. Your location is outside the critical habitat.

https://ecos.fws.gov/ecp/species/5949
Northern Long-eared Bat  Myotis septentrionalis
No critical habitat has been designated for this species.

https://ecos.fws.gov/ecp/species/9045

Birds
NAME
Red Knot  Calidris canutus rufa
This species only needs to be considered if the following condition applies:
• Only actions that occur along coastal areas during the Red Knot migratory window of MAY 1 - SEPTEMBER 30.

No critical habitat has been designated for this species.

https://ecos.fws.gov/ecp/species/1864

Reptiles
NAME
Eastern Massasauga (=rattlesnake)  Sistrurus catenatus
This species only needs to be considered if the following condition applies:
• All Projects: Project is Within EMR Range

No critical habitat has been designated for this species.

https://ecos.fws.gov/ecp/species/2202

Clams
NAME
Snuffbox Mussel  Epioblasma triqueta
No critical habitat has been designated for this species.

https://ecos.fws.gov/ecp/species/4135

Insects
NAME
Karner Blue Butterfly  Lycaeides melissa samuelis
There is proposed critical habitat for this species. The location of the critical habitat is not available.

https://ecos.fws.gov/ecp/species/6656
Flowering Plants

NAME

Pitcher's Thistle  Cirsium pitcheri

No critical habitat has been designated for this species.

https://ecos.fws.gov/ecp/species/8153

STATUS

Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act\(^1\) and the Bald and Golden Eagle Protection Act\(^2\).

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service

\(^3\) There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured. Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures, as described below.

2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:


The birds listed below are USFWS Birds of Conservation Concern that might be affected by activities in this location. The list does not contain every bird you may find in this location, nor is it guaranteed that all of the birds on the list will be found on or near this location. To get a better idea of the specific
locations where certain species have been reported and their level of occurrence, please refer to resources such as the [E-bird data mapping tool](https://ecos.fws.gov/ecp/species/6582) (year-round bird sightings by birders and the general public) and [Breeding Bird Survey](https://ecos.fws.gov/ecp/species/3093) (relative abundance maps for breeding birds). Although it is important to try to avoid and minimize impacts to all birds, special attention should be given to the birds on the list below. To get a list of all birds potentially present in your project area, visit the [E-bird Explore Data Tool](https://ecos.fws.gov/).

<table>
<thead>
<tr>
<th>Name</th>
<th>Breeding Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Bittern</td>
<td>Breeds Apr 1 to Aug 31</td>
</tr>
<tr>
<td>Botaurus lentiginosus</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/6582">https://ecos.fws.gov/ecp/species/6582</a></td>
<td></td>
</tr>
<tr>
<td>American Golden-plover</td>
<td>Breeds elsewhere</td>
</tr>
<tr>
<td>Pluvialis dominica</td>
<td></td>
</tr>
<tr>
<td>Black Tern</td>
<td>Breeds May 15 to Aug 20</td>
</tr>
<tr>
<td>Chlidonias niger</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/3093">https://ecos.fws.gov/ecp/species/3093</a></td>
<td></td>
</tr>
<tr>
<td>Black-billed Cuckoo</td>
<td>Breeds May 15 to Oct 10</td>
</tr>
<tr>
<td>Coccyzus erythropthalmus</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/9399">https://ecos.fws.gov/ecp/species/9399</a></td>
<td></td>
</tr>
<tr>
<td>Bobolink</td>
<td>Breeds May 20 to Jul 31</td>
</tr>
<tr>
<td>Dolichonyx oryzivorus</td>
<td></td>
</tr>
<tr>
<td>Buff-breasted Sandpiper</td>
<td>Breeds elsewhere</td>
</tr>
<tr>
<td>Tryngites subruficollis</td>
<td></td>
</tr>
<tr>
<td>Cerulean Warbler</td>
<td>Breeds Aug 20 to Jul 20</td>
</tr>
<tr>
<td>Dendroica cerulea</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/2974">https://ecos.fws.gov/ecp/species/2974</a></td>
<td></td>
</tr>
<tr>
<td>Common Tern</td>
<td>Breeds May 1 to Aug 31</td>
</tr>
<tr>
<td>Sterna hirundo</td>
<td></td>
</tr>
<tr>
<td>Dunlin</td>
<td>Breeds elsewhere</td>
</tr>
<tr>
<td>Calidris alpina arctica</td>
<td></td>
</tr>
<tr>
<td>Eastern Whip-poor-will</td>
<td>Breeds May 1 to Aug 20</td>
</tr>
<tr>
<td>Caprimulgus vociferus</td>
<td></td>
</tr>
<tr>
<td>Golden-winged Warbler</td>
<td>Breeds May 1 to Jul 20</td>
</tr>
<tr>
<td>Vermivora chrysoptera</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/8745">https://ecos.fws.gov/ecp/species/8745</a></td>
<td></td>
</tr>
<tr>
<td>Henslow's Sparrow</td>
<td>Breeds May 1 to Aug 31</td>
</tr>
<tr>
<td>Ammodramus henslowii</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/3941">https://ecos.fws.gov/ecp/species/3941</a></td>
<td></td>
</tr>
<tr>
<td>Least Bittern</td>
<td>Breeds Aug 16 to Oct 31</td>
</tr>
<tr>
<td>Ixobrychus exilis</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/6175">https://ecos.fws.gov/ecp/species/6175</a></td>
<td></td>
</tr>
<tr>
<td>Lesser Yellowlegs</td>
<td>Breeds elsewhere</td>
</tr>
<tr>
<td>Tringa flavipes</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/9679">https://ecos.fws.gov/ecp/species/9679</a></td>
<td></td>
</tr>
</tbody>
</table>
Long-eared Owl  *Asio otus*  
https://ecos.fws.gov/ecp/species/3631  
Breeds Mar 1 to Jul 15

Red-headed Woodpecker  *Melanerpes erythrocephalus*  
Breeds May 10 to Sep 10

Rusty Blackbird  *Euphagus carolinus*  
Breeds elsewhere

Semipalmated Sandpiper  *Calidris pusilla*  
Breeds elsewhere

Short-billed Dowitcher  *Limnodromus griseus*  
https://ecos.fws.gov/ecp/species/9480  
Breeds elsewhere

Willow Flycatcher  *Empidonax traillii*  
https://ecos.fws.gov/ecp/species/3482  
Breeds May 20 to Aug 31

Wood Thrush  *Hylocichla mustelina*  
Breeds May 10 to Aug 31

Yellow Rail  *Coturnicops noveboracensis*  
https://ecos.fws.gov/ecp/species/9476  
Breeds May 15 to Sep 10

**Probability of Presence Summary**

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds.

**Probability of Presence (P)**

Each green bar represents the bird's relative probability of presence in your project's counties during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar’s probability of presence score, simply hover your mouse cursor over the bar.

**Breeding Season**
Yellow bars denote when the bird breeds in the Bird Conservation Region(s) in which your project lies. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort**
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the counties of your project area. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar’s survey effort range, simply hover your mouse cursor over the bar.

**No Data**
A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information.
Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

*Nationwide Conservation Measures* describes measures that can help avoid and minimize impacts to all birds at any location year round. Such measures are particularly important when birds are most likely to occur in the project area. To see when birds are most likely to occur in your project area, view the Probability of Presence Summary. Special attention should be made to look for nests and avoid nest destruction during the breeding season. The best information about when birds are breeding can be found in *Birds of North America (BNA) Online* under the "Breeding Phenology" section of each species profile. Note that accessing this information may require a subscription. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS *Birds of Conservation Concern (BCC)* that might be affected by activities in your project location. These birds are of priority concern because it has been determined that without additional conservation actions, they are likely to become candidates for listing under the *Endangered Species Act (ESA)*.

The migratory bird list generated for your project is derived from data provided by the *Avian Knowledge Network (AKN)*. The AKN data is based on a growing collection of survey, banding, and citizen science datasets. The AKN list represents all birds reported to be occurring at some level throughout the year in the counties in which your project lies. That list is then narrowed to only the Birds of Conservation Concern for your project area.

Again, the Migratory Bird Resource list only includes species of particular priority concern, and is not representative of all birds that may occur in your project area. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To get a list of all birds potentially present in your project area, please visit the *E-bird Explore Data Tool*.
What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird entry on your migratory bird species list indicates a breeding season, it is probable the bird breeds in your project's counties at some point within the time-frame specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Facilities

Wildlife refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND
   PF01C
   PF01A
FRESHWATER POND
PUBF

OTHER
Pf

A full description for each wetland code can be found at the National Wetlands Inventory website:
https://ecos.fws.gov/ipac/wetlands/decoder

Data limitations

The Service’s objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.
Attachment 3
Kent County Public Works
Resource Park
Byron Township, Kent County, and
Dorr Township, Allegan County, Michigan
Agricultural Fields

Hayfield North of 108th Street
Agricultural Fields: Tilled Field

Looking to the Southeast

Looking to the Northwest; Area E is in the Background
Old Field

North of 108th Street

North of 146th Street
Former Tree Nursery
Red Run Drain

Looking West

Looking East
Area A

Viewed from the Southwest
Area B

Buck Creek Floodplain

Forested Terrace
Area D

MDEQ Wetland Conservation Easement

Conservation Easement Sign
Area E

Deciduous Forest

Massive Red Oak
Area E

Drainageway

Potential Vernal Pool with Adjacent Spicebush
Area F: Scrub-Shrub Wetland

Area H: Emergent Wetland
Area G: Former Residential Property

Viewed from the West
AGREEMENT FOR CONSERVATION EASEMENT

(This instrument is exempt from County and State transfer taxes pursuant to MCL 207.505(a) and MCL 207.526(a), respectively)

This CONSERVATION EASEMENT is created on November 5, 2013, by and between

COUNTY OF KENT __________________________ (name) married/single individual[s] (circle one), or corporation, partnership, municipality, or limited liability company (circle one), whose address is 300 Monroe Ave NW, Grand Rapids, MI 49503 (Grantor) and the Michigan Department of Environmental Quality (DEQ), whose address is P.O. Box 30458, Lansing, Michigan 48909-7958 or Constitution Hall, 2nd Floor South, 525 West Allegan Street, Lansing, Michigan 48933 (Grantee);

The Grantor is the fee simple title holder of real property located in (circle one) the Township/City of Byron, Kent County, and State of Michigan, legally described in Exhibit A.

The DEQ is the agency charged with administering Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), and

Permittee/GRANTEE __________________________ (insert name and address of Permittee if other than Grantor) has applied for a Permit (DEQ File Number 10-4/1.002P), pursuant to Part 303, to authorize activities that will impact regulated wetland. The DEQ evaluated the permit application and determined that a permit could be authorized for certain activities within regulated wetlands provided certain conditions are met, and

As a condition of the above-referenced permit, Grantor (on behalf of Permittee, if applicable) has agreed to grant the DEQ a Conservation Easement that protects the wetland mitigation site and/or the remaining wetlands on the property and restricts further development to the area legally described in Exhibit B. The Conservation Easement (the Easement Premises) consists of approximately 0.66 acre(s). A survey map depicting the Easement Premises is attached as Exhibit C. The DEQ shall record this Agreement with the county register of deeds.

ACCORDINGLY, Grantor hereby conveys unto the Grantee, forever and in perpetuity, this Conservation Easement as set forth in this Agreement pursuant to Subpart 11 of Part 21, Conservation and Historic Preservation Easement, of the NREPA, MCL 324.2140 et seq., on the terms and conditions stated below.

COVENANTS, TERMS, CONDITIONS AND RESTRICTIONS

1. The purpose of this Agreement is to protect the functions and values of existing or established wetlands and its natural resource values on the Easement Premises, consistent with the Permit, and the protection of the benefits to the public derived from wetlands and integral habitat, by requiring Grantor to maintain the Easement Premises in its natural and undeveloped condition.
2. Except as authorized under DEQ Permit Number 10-41-0032-P, issued on 4/26/2011, or as otherwise provided in this Agreement, Grantor shall refrain from, and prevent any other person from, altering or developing the Easement Premises in any way. This includes, but is not limited to:

a) Alteration of the surface topography;

b) Creation of paths, trails, or roads;

c) The placement of fill material as defined in Part 303 of the NREPA, MCL 324.30301 et seq., as amended;

d) Dredging, removal or excavation of any soil or minerals;

e) Drainage of surface or groundwater;

f) Construction or placement of any structure;

g) Plowing, tilling, moving or cultivating the soils or vegetation;

h) Alteration or removal of vegetation, including the planting of non-native species;

i) Ranching, grazing, farming;

j) Use of chemical herbicides, pesticides, fungicides, fertilizers, spraying with biocides, larvicides or any other agent or chemical treatments, unless as part of an DEQ-approved Management Plan;

k) Construction of unauthorized utility or petroleum lines;

l) Storage or disposal of ash, garbage, trash, debris, abandoned equipment or accumulation of machinery, bio-solids or other waste materials, including accumulated vegetative debris, such as grass clippings, leaves, yard waste or other material collected and deposited from areas outside the Easement Premises;

m) Use or storage of automobiles, trucks or off-road vehicles including, but not limited to, snowmobiles, dune buggies, all-terrain vehicles, and motorcycles;

n) Placement of billboards or signs, except as otherwise allowed in the Permit or this Agreement;

o) Use of the wetland for the dumping of untreated storm water or the directing of treated storm water to the easement premises at a volume that adversely impacts the hydrology of the wetland;

p) Actions or uses detrimental or adverse to water conservation and purity, and fish, wildlife or habitat preservation.

3. Cutting down, burning, destroying, or otherwise altering or removing trees, tree limbs, shrubs or other vegetation, whether living or dead, is prohibited within the Easement Premises, except with the written permission of Grantee, expressly for the removal of trees or limbs to eliminate danger to health and safety, to reduce a threat of infestation posed by diseased vegetation, invasive non-native plant species that endanger the health of native species or as otherwise provided in the DEQ-approved Management Plan for the Easement Premises.

4. Grantor is not required to restore the Easement Premises due to alterations resulting from causes beyond the owner’s control, including, but not limited to, unauthorized actions by third parties that were not reasonably foreseeable; natural causes or natural disasters, such as unintentional fires, floods, storms, or natural earth movement.

5. Grantor, Permittee or its authorized agents or representatives may enter the Easement Premises to perform activities within the Easement Premises consistent with the Permit or the mitigation requirements. Grantor or Permittee shall provide 5 days notice to the Grantee of undertaking any mitigation activity, even if the mitigation project has been conceptually approved. Any activities undertaken pursuant to the Permit, a mitigation project or this Agreement, shall be performed in a manner to minimize the adverse impacts to existing wetland or mitigation areas.

6. Grantor warrants that Grantor has good and sufficient title to the Easement Premises described in Exhibit B.

7. Grantor warrants that any other existing interests or encumbrances in the Easement Premises have been disclosed to the DEQ.

8. Grantor warrants that to the best of Grantor’s knowledge no hazardous substances or hazardous or toxic wastes have been generated, treated, stored, used, disposed of or deposited in or on the property.
9. This Agreement does not grant or convey to Grantee or members of the general public any right to
possession or use of the Easement Premises.

10. Grantee shall continue to be responsible for the upkeep and maintenance of the Easement Premises to the
extent it may be required by law.

11. Grantee and its authorized employees and agents, as shown in Exhibit D, may enter the Easement
Premises at reasonable times to determine whether the Easement Premises are being maintained in
compliance with the terms of this Agreement, mitigation, or other conditions of the Permit; and for
purposes of taking corrective actions for failure to comply. If Grantee is entering the Easement Premises
for purpose of taking corrective actions, Grantor shall be provided with 14 days notice to provide the
opportunity to cure the failure to comply.

12. This Agreement shall be binding upon the successors and assigns of the parties and shall run with the
land in perpetuity, unless modified or terminated by written agreement of the parties.

13. This Agreement may be modified only in writing through amendment of the Agreement. Any modification
shall be consistent with the purpose and intent of the Agreement.

14. In addition to the right of the parties to enforce this Agreement, it is also enforceable by others against the
owner of the land, in accordance with Part 21, Subpart 11 of the NREPA, MCL 324.2140 et seq, as
amended.

15. Grantor shall indicate the existence of this Agreement on all future deeds, mortgages, land contracts,
plats, and any other legal instrument used to convey an interest in the Easement Premises.

16. A delay in enforcement shall not be construed as a waiver of the Grantee’s rights to enforce the conditions
of this Agreement.

17. This Agreement shall be liberally construed in favor of maintaining the purpose of the Conservation
Easement.

18. If any portion of this Agreement is determined to be invalid by a court of law, the remaining provisions will
remain in force.

19. This Agreement will be construed in accordance with Michigan law. All legal action related to this
conservation easement must be filed and pursued in Michigan state courts.

20. In addition to the terms of the Permit issued by Grantee, this document sets forth the entire agreement of
the parties. It is intended to supersede all prior discussions or understandings.

21. Within 90 days after this Agreement is executed, Grantor shall place and maintain, at Grantor’s expense,
signs, fences, or other suitable markings along the Easement Premises to clearly demarcate the boundary
of the Easement Premises, or as otherwise provided in the Permit.

22. The terms ‘Grantor’ and ‘Grantee’ wherever used in this Agreement, and any pronouns used in place
thereof, shall include, respectively, the above-named Grantor and their personal representatives, heirs,
successors, and assigns, and the above-named Grantee and their successors and assigns.
LIST OF ATTACHED EXHIBITS


Exhibit B: A legal description of the Easement Premises.

Exhibit C: A survey map depicting the Easement Premises that also includes identifiable landmarks, such as nearby roads, to clearly identify the easement site.

Exhibit D: A legal description that provides a path of legal access to the Easement Premises and a map that indicates this access site that DEQ staff will use for ingress and egress to and from the Easement Premises or, if the Easement is directly connected to a publicly accessible point, such as a public road, a statement is required that authorizes DEQ staff ingress and egress to and from the Easement Premises with a map that clearly indiciates the connection of the public access site to the Easement Premises.

Exhibit E: If applicable, a Cooperative Stewardship Agreement that includes baseline documentation and any vegetation and/or site Management Plans.
IN WITNESS WHEREOF, the parties have executed this Agreement on the date first above written. In signing this Agreement, the Signatories warrant that they have the authority to execute this Conservation Easement on behalf of their respective party.

GRANTOR:  
Signature:  
Dan Koordy, Chair  
Kent County Board of Commissioner

STATE OF MICHIGAN  
COUNTY OF KENT

The foregoing instrument was acknowledged before me this 6th day of November, 2013, by Dan Koordy, Chair of the Kent County Board of Commissioners, a Michigan County organized and operating under the laws and Constitution of the State of Michigan, on behalf of the County.

(Signature of Notary Public)  
Melanie V. Grooters  
Notary Public - State of Michigan  
County of Kent  
My Commission Expires April 1, 2016  
Acting in the County of Kent

My commission is in: kent County, Michigan  
Acting in: kent County, Michigan  
My Commission Expires: 4-1-16
GRANTEE:

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION

William Creal, Chief

STATE OF MICHIGAN
CITY OF LANSING
COUNTY OF INGHAM

The foregoing instrument was acknowledged before me this 24th day of February, 2019 by William Creal, Chief, Water Resources Division, State of Michigan, on behalf of the Department of Environmental Quality.

Laura Smith
(Signature of Notary Public)

Laura Smith
(Typed or Printed name of Notary Public)

Acting in: Ingham County, Michigan

My Commission Expires: 8-2-17

Form Drafted By:
The Honorable William Schuette, Attorney General
Department of Attorney General
Environment, Natural Resources, and Agriculture Division
P.O. Box 30755
Lansing, Michigan 48909

AFTER RECORDING, RETURN TO:

Michigan Department of Environmental Quality
Water Resources Division
Constitution Hall, 2nd Floor South
P.O. Box 30458
Lansing, Michigan 48909-7958
EXHIBIT “A”

LEGAL DESCRIPTION OF:

685 108th St. SW
Byron Center, MI 49315
FNP: 41-21-36-300-814

Owner:
Kent, County of
300 Monroe NW
Grand Rapids, MI 49503

Commencing at the Southwest Corner, Section 36, Township 5 North, Range 12 West, Byron Township, MI; Thence North 00degrees 25minutes 33seconds E for a distance of 33.00'; Thence S 88degrees 43minutes 12seconds E for a distance of 33.00' to the POINT OF BEGINNING.

From the POINT OF BEGINNING; Thence, N 00degrees 25minutes 33seconds E for a distance of 1289.24 feet to a point on a line.
Thence, S 88degrees 43minutes 12seconds E for a distance of 234.23' to west line of a 100.00' wide railroad ROW. Thence, S 51degrees 22minutes 01seconds E for a distance of 951.08' to the beginning of a curve, Thence 881.27' along the curve to the right through an angle of 18degrees 02minutes 00seconds, having a radius of 2800.00', and whose long chord bears S 42degrees 21minutes 00seconds E for a distance of 877.64 feet.
Thence, S 33degrees 20minutes 00seconds E for a distance of 94.56' to a point on a line.
Thence N 88degrees 41minutes 04seconds W a distance of 1630.32 feet to the POINT OF BEGINNING;
Continuing 30.0 Acres more or less.
EXHIBIT "B"

EASEMENT PREMISES

LEGAL DESCRIPTION FOR WETLAND MITIGATION CREATION

An Area of land located in the southwest ¼ of Section 36, Township S North, Range 12 West, Byron Township, Kent County, MI.

Commencing 927.00' S 88°41'04" E along the south section line from the SW corner of section, thence N 11°56'00" W 655.32', thence S 88°41'04" E 171.57' to the PLACE OF BEGINNING; Thence S 50°40'00" 469.81', thence N 49°18'27" E 25.91', thence N 34°59'50" W 100.49', thence N 42°59'25" W 149.35', thence N 58°04'18" W 230.85', thence S 38°19'56" W 64.58' to the PLACE OF BEGINNING. Containing 0.66 Acres.
EXHIBIT "C"
EASEMENT PREMISES

SOUTH KENT LANDFILL

100' RAILROAD ROW

S 38°19'65" W 64.35'

S 88°41'04" E 171.57'

POB

N 42°59'25" W 149.35'

N 34°59'50" W 100.49'

WETLANDS CREATION EASEMENT

N 49°16'27" E 25.91'

An Area of land located in the southwest ¼ of Section 36, Township S North, Range 12 West, Byron Township, Kent County, MI.

Commencing 927.00' S 88°41'04" E along the south section line from the SW corner of section, thence N 11°56'00" W 655.32', thence S 88°41'04" E 171.57' to the PLACE OF BEGINNING; S 50°47'00" W 469.81', thence N 49°16'27" E 25.91', thence N 34°59'50" W 100.49', thence N 42°59'25" W 149.35', thence N 53°04'18" W 239.35', thence S 36°19'56" W 64.35' to the PLACE OF BEGINNING. Containing 0.65 Acres.

PREPARED BY: KENT COUNTY DEPARTMENT OF PUBLIC WORKS
S:\\LMP\DPL\Engineering\SW\12 South\Drawings\BYRON SUMMIT\ExhibitFC\ExhibitFC.docx Apr 11, 2013
EXHIBIT "D"
INGRESS/EGRESS

100' RAILROAD ROW

SOUTH KENT LANDFILL

100' INGRESS/EGRESS

POE

WETLANDS CREATION EASEMENT

L: 903.90'
R: 2750.00'
LC: N 41'30"53" W 888.83'

POE

South Line Section 36 - Centerline 108th St, SW (68' R.O.W.)

Southwest Corner, Section 36
T5N, R12W, Byron Township, Kent County, MI

S 88'41"04" 1622.85'

An Area of land located in the southwest 1/4 of Section 36, Township 5 North, Range 12 West, Byron Township, Kent County, MI.

A 100' Ingress/Egress Easement, the centerline of which is described as; commencing 1622.85' S 88'41"04" E along the south section line from the SW corner of section, thence N 18'18"56" W 33.00' to the point of beginning (POB), thence 903.90' along a 2750.00' radius curve to the left, with a long chord of N 41'30"53" W 888.83' to the Point of Ending (POE).
Sustainable Business Park Master Plan

APPENDIX J

Kent County Request for Information (RFI) for Sustainable Business Park Project
SOLICITATION

<table>
<thead>
<tr>
<th>Requesting Agencies</th>
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<tr>
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<tr>
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<td>Description</td>
<td>Public Works Sustainable Business Park Project</td>
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<td>3/1/2018</td>
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INTRODUCTION

The Kent County Purchasing Division is soliciting a Request for Information (RFI) for Kent County Department of Public Works (DPW) Sustainable Business Park Project located in Kent County, Michigan and Allegan County, Michigan. With this RFI, DPW is seeking information and qualifications from companies (Respondents) who present innovative waste processing, conversion, or beneficial technologies and are interested in developing a project within the Sustainable Business Park. The purpose of this RFI is to identify active technology/equipment suppliers, project developers, technology developers, and end-market users that desire to design, build, finance, own and/or operate facilities that will advance the DPW’s economic and environmental goals and advance its vision of a Circular Economy, summarized within the Scope of Services section of this Request.

NONMANDATORY PRE-SUBMISSION CONFERENCE & TOURS

| Conference Date | 3/28/2018 |
| Conference Time (local) | 1 pm (EST) |
| Tour Time (local) | 2 pm (EST) |
| Conference Location | Kent County Department of Public Works located at 1500 Scribner Avenue NW, Grand Rapids, MI 49504 |

CONFERENCE: A nonmandatory pre-submission conference is scheduled for this opportunity and will be provided for all Respondents to ask questions. Respondents may attend either in person or by conference call. Attendees should arrive or call in a minimum of five (5) minutes before the scheduled date and time.
Registration is required for conference phone attendees. Email purchasing@kentcountymi.gov by 5pm local time on March 27, 2018 to register and receive call-in number and access code. Meeting attendees assume all possible technical issues associated with teleconferencing and deems the County and its service provider harmless and without fault regardless of the reason.

TOURS: Nonmandatory pre-submission tours of the North Kent Recycling & Waste Center (transfer station), Recycling & Education Center (material recovery facility), Waste to Energy Facility, South Kent Recycling & Waste Center (landfill) and 200 acres of land sited in the RFI for development of the Sustainable Business Park is scheduled directly following the conference. Registration is required for tour attendees and transportation will be provided. Email purchasing@kentcountymi.gov by 5pm local time on March 14, 2018 to register.

The pre-submission tour purpose is to provide equal opportunity for Respondents to inspect the locations and seek clarifications to the solicitation. Respondents shall have fully reviewed all solicitation documents and correspondence prior to the pre-submission meeting. The County will respond to post-pre-submission meeting material inquiries at its sole discretion. Any material response to a post-submission meeting question will be posted on the inquiry page for this solicitation.

Attendees requiring special services are asked to provide their requirements to the Kent County Purchasing Division at least forty-eight (48) hours in advance to allow for accommodations.

SCOPE OF WORK
Exhibit A

INQUIRIES
Questions regarding this solicitation are to be submitted on the Bid Opportunities page of the Kent County Purchasing Division's website by clicking the “Inquiries” icon for this solicitation posting.

From date of issuance to the award announcement, all communication (including requests for information, comments, speculation, etc.) regarding this solicitation between Kent County and the Respondent or any of their individual members, shall be formal and only with the Kent County Purchasing Division. Formal communication shall include, but not be limited to: (1) general inquiries, (2) pre-submission written questions and answers, (3) site visits, and (4) addendums addressed to contact information provided.

Kent County reserves the right to publish and respond to an inquiry, respond directly to the inquirer without publishing, or not respond to the inquiry at its sole discretion. Kent County’s decision to respond or not respond to an inquiry shall not be the basis for a protest of award.

Opportunity to submit questions is provided until 5 pm local time on April 12, 2018. It is the Respondent’s sole responsibility to monitor all inquiries (including those submitted by other respondents and published by Kent County on Kent County’s website) to properly prepare for this solicitation.
It is the Respondent’s responsibility to become familiar with and fully informed regarding the terms, conditions, and specifications of this solicitation. Lack of understanding or misinterpretation of any portions of this solicitation shall not be cause for withdrawal after opening or for subsequent protest of award.

**ADDENDUMS AND RESPONSES TO INQUIRIES**
Addendums will only be published on the Bid Opportunities page of the Kent County Purchasing Division’s website.

Published responses to inquiries or Kent County published comments on the Bid Opportunities page of the Kent County Purchasing Division’s website are hereby incorporated into the solicitation specifications in lieu of an addendum.

It is the Respondent’s sole responsibility to monitor the website until forty-eight (48) hours (excluding Saturday and Sunday) before the scheduled opening for addendums or posted responses to inquiries to properly prepare for a Request for Proposal, Request for Information or Invitation for Bid solicitation and twenty-four (24) hours (excluding Saturday and Sunday) for a Request for Quote or Reverse Auction solicitation.

**INTENT**
The intent of these specifications is to promote a properly designed and all-inclusive response. Any requirements not in the specifications, but which are needed for such a response, are to be included in the submission.

**STANDARD TERMS AND CONDITIONS**
The Respondent shall not discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex, height, weight, marital status, or disability that is unrelated to the individual’s ability to perform the duties of a particular job or position.

Kent County encourages and solicits participation of qualified minority and women businesses consistent with the principle of utilizing the most highly qualified and competitive firms.

The Respondent shall observe and comply with all applicable federal, state, and local laws, ordinances, rules and regulations which shall be deemed to include, but not be limited to, the Elliott-Larsen Civil Rights Act, the Persons with Disabilities Civil Rights Act, OSHA compliance and specifically the training requirement for individuals and contractors working in correctional facilities that is found in the Prison Rape Elimination Act (“PREA”) 42 USC Sec 15602.

The terms of this request shall be interpreted, construed and enforced pursuant to the laws of the State of Michigan, and the Parties irrevocably consent to the jurisdiction of the federal and state courts presiding in Michigan.
Vendor Representation and Warranty Regarding Federal Excluded Parties List: The Respondent acknowledges that the County may be receiving funds from or through the Federal Government and that such funds may not be used to pay any Respondent on the Federal Excluded Parties List (EPLS). The Respondent represents and warrants to the County that it is not on the Federal EPLS. If the Respondent is in non-compliance at any time during execution or term of this agreement (including any extensions thereof), the Respondent shall be in breach and the County shall be entitled to all remedies available to it at law or equity, specifically including but not limited to recovery of all moneys paid to the Respondent, all consequential damages (including the loss of grant funding or the requirement that grant funding be returned), and attorney fees (including the costs of in-house counsel) sustained as a result of the Respondent’s non-compliance with this warranty and representation.

Pursuant to the Michigan Iran Economic Sanctions Act, 2012 P.A. 517, by submitting a bid, proposal or response, Respondent certifies, under civil penalty for false certification, that it is fully eligible to do so under law and that it is not an “Iran linked business,” as that term is defined in the Act.

Respondent warrants that they are an authorized provider of products or services of his/her submission.

MICHIGAN FREEDOM OF INFORMATION ACT
The Michigan Freedom of Information Act (FOIA) provides the public body with five (5) business days to respond to the request with a provision for an additional ten (10) day extension. The Kent County Purchasing Division may request an extension for any FOIA request received during a solicitation process. The FOIA Request Form for Purchasing is located on the Freedom of Information Act (FOIA) Requests page of Kent County’s website under Online Services.

Information submitted in this solicitation is subject to the Michigan Freedom of Information Act and may not be held in confidence after the Respondent’s submission is opened. A submission will be available for review after staff has evaluated it, or fifteen (15) business days after the opening date, whichever comes first.

Kent County cannot assure that any of the information submitted as part of or peripheral to the Respondent’s submission will be kept confidential. Any Respondent submission language designated as confidential is considered automatically invalid and void. Kent County is subject to the Michigan Freedom of Information Act, which prohibits it from concealing information on or associated with responses, successful or unsuccessful, once they are opened.

REQUEST FOR PROPOSAL SUBMISSION
To be considered, complete submissions must be received in the Kent County Purchasing Division, 300 Monroe Avenue, NW, Grand Rapids, MI 49503 no later than the due date and time specified (local time).

Submissions may be submitted electronically by selecting the “Submit Online” icon on the Bid Opportunities page of the Kent County Purchasing Division’s website. The Respondent must include its complete proposal as an attachment to the online form containing one (1) file in PDF format unless otherwise designated.
Kent County confirms electronic responses by email following successful submission (contact the Kent County Purchasing Division prior to solicitation opening if confirmation is not received by the Respondent). The Respondent is responsible to view the confirmation to confirm their submission is received and accessible.

The time required to upload a complete submission may vary. The Respondent assumes all risks associated with electronic submission (including all possible technical issues) and deems the County and its service provider harmless and without fault regardless the reason.

Submissions not submitted online shall be submitted in an envelope to the designated location prior to the scheduled opening. A CD/DVD ROM or USB flash drive marked "original" containing the proposal consisting of one (1) file in PDF format shall be submitted unless other arrangements are made prior to the scheduled opening. The PDF file must not be password protected. The media will not be returned to the Respondent.

All submissions must be submitted to the designated location in an envelope or package unless otherwise specified or submitted electronically. The outside of the envelope or package and enclosed media must be clearly labeled with the solicitation number, opening date and time, and Respondent's name, telephone number, and company name.

If the submission is delivered by an express mail carrier, electronic submission when applicable, or by any other means, it is solely the Respondent's responsibility to ensure delivery to the Kent County Purchasing Division. Kent County is not responsible for deliveries made to any place other than the designated address or for any failure associated with any mode of delivery selected by the Respondent.

Kent County is not responsible for delays caused by any occurrence. The date/time stamp clock located in the Purchasing Division (or any other designated area) shall serve as the official authority to determine lateness of any proposal. Under no circumstances shall submissions delivered after the time specified be considered. The decision to refuse or consider a submission received beyond the date/time established shall not be the basis for a protest.

Late, faxed, or emailed responses will NOT be considered. To be considered timely, a complete response must be submitted before the stated due date/time.

The Respondent’s submission must include any contract which Kent County may be asked to sign. Kent County reserves the right to present its own contract document in lieu of accepting the standard offered by the Respondent.

The Respondent certifies that the response submitted has not been made or prepared in collusion with any other Respondent and the prices, terms or conditions thereof have not been communicated by or on behalf of the Respondent to any other Respondent prior to the official opening of this request. This certification may be treated for all purposes as if it were a sworn statement made under oath, subject to the penalties for perjury. Moreover, it is made subject to the provisions of 18 U.S.C. Section 1001, relating to the making of false statements.
Sales and Marketing material beyond the scope of this request will not be used to determine the award and is not desired. Each submission should be simply and economically prepared, providing a concise description of the Respondent’s ability to perform the product or services requested. Emphasis should be on completeness and clarity of content.

Submissions may be withdrawn by written request only if the request is received on or before the opening date and time.

Submissions not meeting these criterions may be deemed non-responsive.

Kent County is not liable for any costs incurred by any prospective Respondent prior to the awarding of a contract, including any costs incurred in addressing this solicitation.

SUBMISSION FORMAT
See Scope of Services, Exhibit A: Submission Requirements

EVALUATION, STATUS UPDATES/AWARD NOTIFICATION
Kent County reserves the right to request additional information it may deem necessary after the submissions are received.

As part of the evaluation process, Respondents may be requested to make an oral presentation, at the Respondent’s expense, to an evaluation committee. Staff to be assigned to this project must participate in this presentation unless otherwise waived by Kent County. The presentation may be followed by a question and answer session.

Kent County reserves the right at its discretion to waive irregularities of this solicitation process.

Any errors, omissions or discrepancies in the specifications discovered by a prospective Respondent shall be brought to the attention of the Kent County Purchasing Division as soon as possible after discovery. Further, the Respondent shall not be allowed to take advantage of error, omissions or discrepancies in the specifications.

Kent County, at its sole discretion, reserves the right to award to the Respondent(s) whose response is deemed most advantageous to Kent County. Kent County, at its sole discretion, shall select the most responsive and responsible Respondent(s) and evaluate all responses based on the requirements and criterion set forth in this solicitation while reserving the right to weigh specifications and other factors in the award. Kent County reserves the right to reject any and all submissions as a result of this solicitation.

Award notifications are posted on the Solicitation Status Page of the Kent County Purchasing Division’s website. It is the Respondent’s responsibility to monitor the website for status updates.

Kent County appreciates the interest, effort, and time spent in responding to this solicitation.
Request for Information

SCOPE OF WORK

Kent County, Michigan
Sustainable Business Park Project
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<p>| <strong>Glossary</strong> |
|-----------------|----------------------------------|
| <strong>Ash Monofill</strong> | Co-located with the South Kent Recycling &amp; Waste Center, an Ash Monofill is utilized to dispose combustion residue from Waste to Energy. |
| <strong>Bottom Ash</strong> | Combustion residue composed of material that falls to the bottom of the boiler including ash-coated ferrous and non-ferrous metals |
| <strong>Bulky Waste</strong> | Oversized material such as mobile homes, boats, furniture, logs, mattresses, etc. |
| <strong>CESQG</strong> | Conditionally Exempt Small Quantity Generator. This would include companies that generate no more than 220 lbs. (100 kg) of hazardous waste per month. |
| <strong>Circular Economy</strong> | A value-added system in which virgin resource inputs, wastes, emissions, and energy leakages are minimized by slowing, closing, and narrowing material and energy loops to eliminate loss. |
| <strong>Construction and Demolition (C&amp;D):</strong> | Waste material generated as part of construction and/or demolition projects including inert material, dimensional lumber, roofing, cardboard, drywall, composite wood, etc. |
| <strong>Commercial Waste</strong> | Waste material generated from commercial establishments such as retail shopping outlets, local businesses, breweries, entertainment venues, etc. |
| <strong>Commercial Recyclables</strong> | Waste material source separated by commercial establishments and collected as part of a recycling program |
| <strong>Energy Generation</strong> | Processing waste material as a fuel/feedstock to generate energy in the form of steam, electricity, or heat (e.g., anaerobic digestion, gasification, pyrolysis, etc.) either for use in a Sustainable Business Park utilities system, or for export to the grid |
| <strong>End-market Use</strong> | Processing or supporting the processing of waste material after it has been recovered from the waste stream, and putting it towards a beneficial use. Examples include product manufacturing using recycled plastic, wood or metals; composite product manufacturing; chill water to cool industrial equipment; district energy production; chemical intermediate production; academic/research interests, etc. |
| <strong>Municipal Waste Combustor Residue/Fly Ash</strong> | Combustion residue composed of particulates captured in baghouses as part of the Waste to Energy facility’s air pollution control system |
| <strong>Fuel/Feedstock Preparation:</strong> | Processing waste material to produce a solid, liquid, or gaseous fuel, or a production feedstock (e.g. refuse derived fuel, ethanol/methanol, bio-diesel, paper pulp, biomass) |
| <strong>HHW/Household Hazardous Waste</strong> | Household Hazardous Waste: Household products that contain hazardous substances such as pesticides, propane |</p>
<table>
<thead>
<tr>
<th><strong>canisters, cleaning products, etc., categorized as flammable, corrosive or poisonous. Kent County’s HHW program is termed SafeChem.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Industrial Non-hazardous Waste/IW</strong></td>
</tr>
<tr>
<td><strong>Linear Economy</strong></td>
</tr>
<tr>
<td><strong>Material Re-use</strong></td>
</tr>
<tr>
<td><strong>Material Recycling</strong></td>
</tr>
<tr>
<td><strong>MCW</strong></td>
</tr>
<tr>
<td><strong>MRF</strong></td>
</tr>
<tr>
<td><strong>MSW</strong></td>
</tr>
<tr>
<td><strong>Municipal solid waste</strong></td>
</tr>
<tr>
<td><strong>Powder Coat</strong></td>
</tr>
<tr>
<td><strong>RFI</strong></td>
</tr>
<tr>
<td><strong>RFP</strong></td>
</tr>
<tr>
<td><strong>Recycling Rate</strong></td>
</tr>
<tr>
<td><strong>Residential Garbage</strong></td>
</tr>
<tr>
<td><strong>Residential Recyclables</strong></td>
</tr>
<tr>
<td><strong>Residential Yard Waste</strong></td>
</tr>
<tr>
<td>Term</td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Residuals</td>
</tr>
<tr>
<td>Single-stream recycling</td>
</tr>
<tr>
<td>Solid waste</td>
</tr>
<tr>
<td>Source-separated</td>
</tr>
<tr>
<td>Special waste</td>
</tr>
<tr>
<td>TPD</td>
</tr>
<tr>
<td>TPY</td>
</tr>
<tr>
<td>Tipping fee</td>
</tr>
<tr>
<td>Transfer station</td>
</tr>
<tr>
<td>Waste reduction</td>
</tr>
<tr>
<td>Waste stream</td>
</tr>
<tr>
<td>Waste to Energy/WTE</td>
</tr>
</tbody>
</table>
Purpose

The Kent County, Michigan (County) Department of Public Works (DPW) has established a policy goal to substantially reduce the flow of waste to its existing landfill, adopting ambitious targets to reduce overall waste to landfill by 20% in 2020 and 90% by 2030. To that end, DPW is in the process of developing a Sustainable Business Park adjacent to the South Kent Recycling & Waste Center (Landfill) in Byron Center to take advantage of emerging waste disposal and recycling technologies and stimulate the market for locally sourced manufacturing inputs.

With this Request for Information (RFI), DPW is seeking information and qualifications from companies (Respondents) who present innovative waste processing, conversion, or beneficial technologies and are interested in developing a project within the Sustainable Business Park. The purpose of this RFI is to identify active technology/equipment suppliers, project developers, technology developers, and end-market users that desire to design, build, finance, own and/or operate facilities that will advance the DPW’s economic and environmental goals and advance its vision of a Circular Economy, summarized here:

The development of a Sustainable Business Park will stimulate the paradigm shift towards a Circular Economy, a value-added system in which virgin resource inputs, wastes, emissions, and energy leakages are minimized by slowing, closing, and narrowing material and energy loops to eliminate loss. This can be achieved through thoughtful design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling of stocks and materials flow. This approach contrasts the current one-time Linear Economy which is based on a ‘take, make, dispose' model of production and consumption. See Figure 1 for a graphical depiction to further illustrate the comparison.

![Circular Economy vs. Linear Economy](Source: Circular Economy EU Plan 2016-2019)
The tenants of the Sustainable Business Park will catalyze the transition from the current status-quo material management economy to a Circular Economy by establishing infrastructure to produce inputs for re-introduction into industrial manufacturing supply chains. Carrying out the vision of the Circular Economy, the Sustainable Business Park will increase material diversion from disposal and develop the local manufacturing economy required to sustain DPW’s future solid waste management system.

The DPW seeks processes, technologies, or combinations thereof that will significantly reduce the tonnage of material that require landfill disposal at the South Kent Recycling & Waste Center as well as other disposal facilities in the region, and stimulate demand for recycled commodities across various sectors in the Midwest. The DPW will consider submissions from Respondents presenting large-scale (greater than 250 ton per day in capacity), medium-scale (between 50 and 250 tons per day in capacity), and small-scale (less than 50 tons per day in capacity) solutions. Technology status will be categorized by Respondents as Commercially-Proven (i.e. commercially viable technology with operating reference facility or facilities); Commercially-Demonstrated (i.e. proven technology without a Commercially-Proven reference facility or facilities) or Pilot (i.e. start-up/emerging technology with a functioning prototype prepared for deployment on a trial basis). The criteria for categorizing the technology status is provided in the Submission Requirements section later in this document.

Table 1 presents the Desired Offerings Matrix and describes the level of scale and technology status that will be appropriate as a potential tenant of the Sustainable Business Park:

<table>
<thead>
<tr>
<th>Technology Status</th>
<th>Large scale</th>
<th>Medium scale</th>
<th>Small scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercially-Proven</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Commercially-Demonstrated</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pilot</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

It is anticipated that large-scale facilities will be focused on processing mixed waste streams, while medium-scale facilities will focus on processing unique separated waste streams (listed below). Small-scale facilities are anticipated to focus upon niche sub-streams of waste, such as bulky waste, non-recyclable plastics, textiles, composite packaging etc.

It is the DPW’s desire and expectation to host a variety of tenants and technologies within the Sustainable Business Park including one or more medium to large-scale Anchor Projects (Anchors). In addition to the Anchors, the DPW will consider a dedicated area on the Site for the installation of a Research, Development and/or Education facility as part of the Sustainable Business Park. This facility could serve temporary tenants, potentially in partnership with an educational institution, that are in the ideation and bench-scale stages of applicable technologies. As a means of providing a basis for temporary tenants to develop technologies to pilot-scale and advance the state-of-the-art in conversion technologies, the Research, Development and Education facility would potentially be supported by revenues generated from the operation of the Sustainable Business Park.

The DPW is seeking Respondents providing solutions falling under one or more of the following categories:

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1 For category and material definitions, refer to the Glossary section above
A. Material Re-use,
B. Material Recycling,
C. Fuel/Feedstock Preparation,
D. Energy Generation,
E. Other/End-market Users/Manufacturing

The DPW will be the sole arbiter of whether a technology qualifies as an eligible technology under this RFI. Eligible technologies will impact the supply chain of one, or a combination of several, of the following materials from Kent County and the surrounding region, as applicable:

A. Municipal Solid Waste;
B. Municipal Waste Combustor Residue;
C. Yard Waste;
D. Bulky Waste;
E. Construction & Demolition; and,
F. Industrial Non-hazardous Waste

See Background Information below for more detailed material descriptions.

The expected outcome of the RFI process is to advance the development of the Sustainable Business Park into a site that will leverage new and existing infrastructure to divert materials from disposal at all DPW facilities and create new materials or products as a result of manufacturing partners who will utilize materials produced or diverted by tenants of the Sustainable Business Park. Following this RFI, DPW will ascertain interest among prospective tenants of the Sustainable Business Park and inform the Master Plan report which will include recommendations for the Sustainable Business Park’s development.

Table 2 presents the RFI and Sustainable Business Park project timeline:

<table>
<thead>
<tr>
<th>Timeline Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPW Issues RFI</td>
<td>March 2, 2018</td>
</tr>
<tr>
<td>Optional meeting/facility tour</td>
<td>March 28, 2018</td>
</tr>
<tr>
<td>Respondent Deadline for Submitting Questions</td>
<td>April 6, 2018</td>
</tr>
<tr>
<td>DPW Deadline for Submitting Question Responses</td>
<td>April 12, 2018</td>
</tr>
<tr>
<td>Respondent Deadline for Submission</td>
<td>April 26, 2018</td>
</tr>
<tr>
<td>Evaluate and incorporate RFI data into Master Plan, as appropriate</td>
<td>Summer 2018</td>
</tr>
<tr>
<td>Present Master Plan and Recommendations to DPW</td>
<td>Summer 2018</td>
</tr>
<tr>
<td>Notify Respondents of Next Steps for Sustainable Business Park Development</td>
<td>Fall 2018</td>
</tr>
</tbody>
</table>

The Advisory Team to the DPW for the project includes:

- Gershman, Brickner & Bratton, Inc. (GBB) acting as lead solid waste management and development consultant;
- Byrum & Fisk acting as lead strategic communications and public relations advisors;
- Fishbeck, Thompson, Carr & Huber (FTC&H) acting as site development consultant

2 Includes MRF process residues, as described in Glossary section
More information about the Sustainable Business Park project can be found in Attachment B and on our website:

http://www.reimaginetrash.org/vision/

Background

This RFI provides Respondents with a unique opportunity to present their offering to the DPW as a first step towards taking part in the development of the Sustainable Business Park. With DPW poised to significantly impact the recycling infrastructure in West Michigan, the Sustainable Business Park will provide unparalleled exposure to local, state and federal experts and decision-makers. DPW is eager to support this effort and will cooperate with the selected Respondent to maximize success.

Kent County’s DPW is staffed by an experienced management team, professionally trained and with extensive experience in geology, civil engineering, energy policy, hydrology and equipment maintenance, among other fields. In addition, DPW has significant experience in the planning, implementation and operation of solid waste processing systems. Since the mid-1960s Kent County has overseen the siting, engineering, construction, operation, closure, monitoring and maintenance of four landfills, one of which is still in operation. In the mid-1980s DPW constructed a transfer station, which they continue to operate. DPW also facilitated the planning and construction and negotiated the contract to operate the Waste to Energy Facility beginning in 1990. In that same year, DPW began operating a dual stream material recovery facility (MRF), ultimately seeing it through to the construction of a new single stream MRF in 2010, with new equipment added in in 2017.

Kent County’s integrated solid waste management system provides disposal, recycling and recovery services through the use of the following facilities, the locations of which can be found in Figure 2:

- South Kent Recycling & Waste Center (Landfill);
- North Kent Recycling & Waste Center (Transfer Station);
- Recycling & Education Center (MRF);
- Household Hazardous Waste (HHW) drop-off sites; and,
- Waste to Energy facility (WTE);
Figure 2 - Map of DPW Managed Assets and Key Solid Waste Facilities in the Region

DPW utilizes the above assets to handle more than 600,000 tons of material per year. Additionally, there are an estimated 325,000 tons of solid waste produced in Kent County but currently managed by entities generally located outside of Kent County. It should be noted that flow control is not a consideration for the implementation of this project at this time, and neighboring facilities and entities have established infrastructure that may impact the flow of waste. Explicit definitions of the waste materials generated and managed in Kent County are defined in the Glossary above.

Table 3 lists the tipping fees at each of the DPW facilities:

<table>
<thead>
<tr>
<th>Facility</th>
<th>Tipping Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Kent Recycling &amp; Waste Center (Landfill)</td>
<td>$38.64 per ton</td>
</tr>
<tr>
<td>North Kent Recycling &amp; Waste Center (Transfer Station)</td>
<td>$38.64 per ton</td>
</tr>
<tr>
<td>Waste to Energy Facility (WTE)</td>
<td>$51.68 per ton</td>
</tr>
<tr>
<td>Recycling &amp; Education Center (MRF)</td>
<td>$35-45 per ton</td>
</tr>
</tbody>
</table>

Information regarding tonnages sent to landfills that receive waste generated in Kent County (featured in Figure 2 and Table 4) was derived from a 2017 Michigan DEQ report on landfilled waste in the state.
The landfills in Table 4 that received over 150,000 cubic yards of waste generated in Kent County include (in no particular order) the South Kent Waste & Recycling Center, Autumn Hills Recycling and Disposal Facility, Central Sanitary Landfill, Pitsch Sanitary Landfill, and Ottawa County Farms. It should be noted again that DPW is willing to advocate for inflow of material from outside Kent County in order to enhance the success of the project.

Table 4 - Volume of Waste Received at Regional Landfills

<table>
<thead>
<tr>
<th>Landfill</th>
<th>Municipal and Commercial Waste</th>
<th>Industrial Waste</th>
<th>Construction &amp; Demolition</th>
<th>Percent of Total Waste that Originates in Kent County</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Kent Waste &amp; Recycling Center</td>
<td>942,334</td>
<td>-</td>
<td>-</td>
<td>88%</td>
</tr>
<tr>
<td>Ottawa County Farms</td>
<td>719,356</td>
<td>428,210</td>
<td>92,802</td>
<td>25%</td>
</tr>
<tr>
<td>Pitsch Sanitary Landfill</td>
<td>39,384</td>
<td>405</td>
<td>277,101</td>
<td>66%</td>
</tr>
<tr>
<td>SC Holdings</td>
<td>120,663</td>
<td>9,280</td>
<td>15,345</td>
<td>11%</td>
</tr>
<tr>
<td>Autumn Hills Recycling and Disposal Facility</td>
<td>506,968</td>
<td>399,404</td>
<td>61,199</td>
<td>18%</td>
</tr>
<tr>
<td>Central Sanitary Landfill</td>
<td>526,748</td>
<td>46,969</td>
<td>12,666</td>
<td>59%</td>
</tr>
</tbody>
</table>

Estimated 2017 yearly tonnages of waste material managed by the DPW are displayed in Table 5.

Table 5 - 2017 Tonnage Summary

<table>
<thead>
<tr>
<th>Kent County Managed Waste</th>
<th>Waste Material Managed (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSW</td>
<td>500,000</td>
</tr>
<tr>
<td>Residential recyclables (single stream)</td>
<td>34,800</td>
</tr>
<tr>
<td>Yard Waste</td>
<td>25,000</td>
</tr>
<tr>
<td>Sludge</td>
<td>8,000</td>
</tr>
<tr>
<td>Ash Monofill</td>
<td>42,000</td>
</tr>
<tr>
<td>HHW</td>
<td>700</td>
</tr>
<tr>
<td>Construction &amp; Demolition Debris</td>
<td>45,000</td>
</tr>
<tr>
<td>Industrial Waste</td>
<td>See survey description below</td>
</tr>
</tbody>
</table>

Additionally, over time there has been approximately one million tons of combustion residue placed into the ash monofill at the South Kent Waste and Recycling Center that could be mined for the recovery of ferrous, non-ferrous, precious metals and residue reuse.

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3 Amounts greater than 150,000 cubic yards
5 Historically DPW has not tracked C&D material in specific at the South Kent Waste & Recycling Center, although recent efforts are now underway to address this.
An online survey was issued during January 2018 to small- and medium-sized manufacturing companies within a 50-mile radius of the prospective Sustainable Business Park. From the thirty-five (35) responses received, a clear majority reported a desire to divert as much waste possible from landfill; cost was the top concern followed by environmental benefits in terms of what would entice them to use the Sustainable Business Park.

In addition, a past GBB study in Kent County indicated that there are several local manufacturers regularly producing more than 30 tons of wood waste per day. Across regional furniture manufacturers, the aggregate waste stream has been estimated at over 1,000 tons per day, of which a substantial amount wood waste is sent to the Genesee WTE facility in Flint, Michigan. Powder coat waste is also commonly noted as problematic to recycle for manufacturers. There is estimated to be a minimum 200 tons per month of powder coat generated in the region, in mixed colors, mixed polymers, and mixed collection containers.

Michigan’s Beverage Container Act, also known as a bottle deposit or Bottle Bill, was designed to reduce littering and conserve resources. It requires a deposit at the time of purchase of soft drinks, soda water, carbonated natural or mineral water, other nonalcoholic carbonated drink, and beer, ale, or other malt drink of whatever alcoholic content in containers less than one gallon, regardless of the container’s material composition. Currently the amount of deposit is $0.10; 75% of unredeemed deposit funds are distributed to statewide environmental programs, the remaining funds go to retailers. Since 1990 Michigan has maintained a redemption rate well above 90%. The redemption rate in 2016 was approximately 92%.

For more information about Kent County, DPW operations such as the parameters of acceptable waste and hours of operation, as well the guiding principles and vision of the Reimagine Trash campaign, visit www.reimaginetrash.org

Facilities

**South Kent Recycling & Waste Center** (10300 South Kent Drive, Byron Center, MI 49315)

The South Kent Recycling & Waste Center is an active landfill with ancillary recycling services on-site including collection of white goods, tires, concrete, electronics, and small amounts of cardboard. The 350 acre property has a scale house with three scales, an office and maintenance building. The primary function at the site is the active landfill which received 347,465 tons in 2017. Also on the property is an ash monofill which received 42,735 tons from the county-owned Waste to Energy Facility in 2017. In total it is estimated that approximately 1,000,000 tons of combustion residue have been placed into the monofill here that could be mined for the recovery of ferrous, non-ferrous, precious metals and residue reuse. The Landfill also received 8,000 tons of sludge bringing the total of all waste disposed there to over 390,000 tons in 2017. This represents an approximate 10% growth from the previous year, and an increase of more than 70% since 2010. An active gas collection system is located onsite that generates 3.2

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6 [www.gbbinc.com/KentCountyZeroWasteToLandfill](http://www.gbbinc.com/KentCountyZeroWasteToLandfill)


9 It is worth noting that the Bottle Bill may significantly impact the quantity of aluminum available here.
megawatts of electricity fed directly into the grid on-site and a flare that is engaged during maintenance. More detailed information about the Landfill, including a breakdown of composition can be found in Attachment A.

**North Kent Recycling & Waste Center** (2908 Ten Mile Road, Rockford, MI 49341)

The North Kent Recycling & Waste Center (Transfer Station) is an active solid waste transfer station adjacent to the closed North Kent Landfill with ancillary recycling services onsite including collection of white goods, tires and electronics. The facility consists of a closed landfill, scale house with 2 scales, transfer building with two in-floor compactors that fill walking floor transfer trailers, outdoor recycling drop-off station, outdoor SafeChem (household hazardous waste) station, and outdoor storage area for white goods. The transfer station received nearly 102,000 tons in 2017. Of this total around 75,000 were brought to the Central Sanitary Landfill and the remaining 27,000 tons were delivered to the South Kent Recycling & Waste Center. No waste characterization study has been performed at this site but anecdotal data suggests that a significant amount of roofing material, vinyl siding, pallets, plywood, structural lumber and other construction & demolition material is discarded here.

**Kent County Recycling & Education Center** (977 Wealthy SW, Grand Rapids, MI 49504)

The Kent County Recycling & Education Center is a single stream material recovery facility (MRF) built on 5 acres just outside downtown Grand Rapids. The facility opened for operation in 2010, replacing an aging dual-stream recycling facility. The facility is owned and operated by Kent County and processed 32,132 tons in 2017. Approximately 10% of the incoming material was discarded as process residue. Recyclables received at the MRF are from curbside collection by the City of Grand Rapids and private haulers within a ten county region around Kent County. DPW’s recycling drop-off stations also contribute to the overall tonnage. Recent equipment upgrades at the facility include a Harris baler, MSS optical scanner (cartons and HDPE) and OCC screen.

Services co-located on this property include electronics recycling and a recycling drop-off station. The site includes a scale, scale house, 5,000 square foot education center with museum-quality exhibits that hosted nearly 7,000 people in 2017 and an ancillary 10,000 square foot building that is currently used for equipment storage and electronics recycling.

**Recycling Drop-Off Stations** are operated by Kent County at two of DPW’s facilities and an additional station is located in a geographic area of Kent County with a high percentage of multi-family residential dwellings.

- **Rockford Recycling Station** at North Kent Recycling & Waste Center
- **Grand Rapids Recycling Station** at the Recycling & Education Center
- **Kentwood Recycling Station** at the Kentwood Public Works Facility

Recyclables from the drop-off centers currently are recovered in 30-yard roll off containers. More information about the MRF and Drop-off Stations can be found in Attachment A.

**SafeHomes Programs (chemicals, medications, sharps)**

Kent County DPW administers the SafeChem suite of programs that include SafeChem, SafeMeds and SafeSharps to ensure safe disposal of chemicals, medications, and needles (sharps) from Kent County residents.
SafeChem Centers for HHW are located in four distinct areas of the county to provide convenient access to safe disposal of leftover home chemicals.

- **Rockford SafeChem Center** is co-located at the North Kent Recycling & Waste Center.
- **Grand Rapids SafeChem Center** is co-located at the Kent County DPW Administrative Offices.
- **Kentwood SafeChem Center** is co-located at the City of Kentwood Public Works facility.
- **Wyoming SafeChem Center** is co-located at the City of Wyoming Clean Water Plant.

The SafeChem Centers each have a hazardous material storage building with UL Approved secondary containment and fire suppression systems with three distinct storage areas to keep incompatible materials segregated. Each Center is open two to four hours per week (based on the time of year) on a rotating basis and no appointments are required. In 2016, over 4,500 individuals used the service and safely disposed of more than 150,000 pounds of chemicals. In 2017, DPW managed 130 tons of HHW through the SafeChem Program, an increase of more than 70% from the year prior.

It should be noted that DPW will be expanding their HHW service to include CESQG waste within the next two years.

The SafeMeds Program accepts expired and unneeded prescription and over-the-counter medicines for safe destruction in Kent County’s Waste to Energy Facility. Kent County is the administrator of the Program with partners that include wastewater treatment facilities, pharmacies and law enforcement agencies.

The SafeSharps Program is a collaboration between the DPW and Kent County Health Department to ensure safe and confidential disposal of needles and other residential sharps. Containers are distributed empty and received full through the Health Department clinic sites around Kent County and the program is administered by the DPW.

**Waste-to-Energy Facility** (950 Market Ave, Grand Rapids, MI 49503)

The WTE facility is owned by Kent County and operated under contract by Covanta, Inc. The facility opened for commercial operation in 1990 with a processing capacity of 625 tons per day, generating up to 18 megawatts of electricity and up to 116,000 pounds of steam per hour. The facility received 262,788 tons in 2017 of which roughly 77,000 tons were rejected as non-processible and transferred directly to the Landfill, and over 3,000 tons of ferrous metal were recovered. The facility does not recover non-ferrous metals from the combustor residue.

The DPW’s responsibilities for management of the facility include:

- Oversight of Covanta operations and maintenance services;
- Operation of the facility scale house;
- Management of the tip floor at the facility, including loading of any bypass material;
- Operation of compactor and waste transfer functions at the facility; and,
- Waste transfer from the Facility to Landfill.

More detailed information about the WTE Facility, including a breakdown of composition can be found in Attachment A.

**Sustainable Business Park Site**

The Sustainable Business Park site (Site) is located in the southwest quarter of Section 36 of Byron Township (Town 5 North, Range 12 West) and the West Half of Section 1 of Dorr Township (Town 4 North, Range 12 West). These areas are bounded by a railroad embankment and the South Kent Recycling &
Waste Center to the north; US-131 to the east; 146th Avenue and agricultural land to the south; and Clyde Park Avenue/14th Street and agricultural land to the west, as shown in Figure 3 below.
Figure 3 - Kent County Sustainable Business Park Site
The preliminary Site layout is divided into the originally-permitted area (known as the existing landfill), and those areas designated to house future tenants of the Sustainable Business Park. Existing utility connections are available to the north, including Byron-Gaines Utility-owned sanitary sewer and watermain, Consumer’s Energy-owned electric and DTE-owned natural gas utility. A high voltage transmission line bisects the Site as well as a natural gas interconnection with Consumer’s Energy in the south of the landfill.

The Port of Muskegon and the Detroit-Wayne Port Authority, the two largest ports in Michigan, are 55 miles and 160 roadway miles from the Site, respectively. Other regional ports include the Port of St. Joseph and Benton Harbor (75 roadway miles), and Port Huron (180 roadway miles). Table 6 outlines the proximity of the Site to major metropolitan centers and their respective populations and Figure 4 highlights the surrounding roadway network:

<table>
<thead>
<tr>
<th>Destination</th>
<th>Driving Distance</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ann Arbor, MI</td>
<td>137 Miles</td>
<td>120,782</td>
</tr>
<tr>
<td>Detroit, MI</td>
<td>160 Miles</td>
<td>672,795</td>
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<tr>
<td>Port Huron, MI</td>
<td>180 Miles</td>
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</tr>
<tr>
<td>Cleveland, OH</td>
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</tr>
<tr>
<td>Chicago, IL</td>
<td>180 Miles</td>
<td>2,705,000</td>
</tr>
<tr>
<td>Indianapolis, IN</td>
<td>290 Miles</td>
<td>864,771</td>
</tr>
</tbody>
</table>

Figure 4 - Roadway Network Surrounding Sustainable Business Park
DPW is willing and capable of contributing funds to assist with necessary infrastructure improvements at the Site (e.g., construction of internal roadways, configuring electricity interconnections, configuring water and sewage pipelines, etc.). DPW’s investment will be based on the information provided in submissions through the RFI process and ultimately the recommendations featured in the Master Plan Report.

Figure 5 illustrates Michigan’s railroad network:
In 2015, CSX International and Michigan businesses invested $22.5 million to enhance the railroad’s network throughout the state, which spans roughly 1,200 miles. CSX maintains a terminal in Grand Rapids that houses a Major Rail Yard and Bulk Transfer Terminal located approximately 15 miles from the Site. Grand Elk Railroad (a subsidiary of the WATCO Companies) operates the rail line that runs north-south through Kent County adjacent to the Sustainable Business Park Site. The Grand Elk provides interchange service with the CSX, Canadian National, and Norfolk Southern railroads.

Project Roles

At this time, the Respondents’ roles in this project will be to propose the means of handling, processing, converting, and/or diverting waste material from the Landfill as a tenant of the Sustainable Business Park. Ultimately, prospective tenants will be responsible for applying for and securing all required permits, approvals and permissions. The construction and operation of a prospective facility must integrate with the operations of the Landfill and other current components of the solid waste system. Prospective tenants will be solely responsible for the financial arrangements of their facility, including the marketing of all offtake products.

DPW is dedicated to this project and achieving their ambitious landfill diversion goals. To that end, DPW is willing and able to offer favorable business terms, affordable financing and attractive partnerships with private entities seeking to become tenants of the Sustainable Business Park. DPW is also willing to advocate for the inflow of material from outside Kent County and/or Michigan to make projects successful. DPW is prepared to provide access to the Site with necessary site infrastructure, access to waste material managed by DPW, coordination among tenants, disposal of process residues at the Landfill, cooperation in obtaining permits, approvals and/or permissions, and assistance with grant applications and securing financial incentives in support of the project. It is also anticipated that the DPW will maintain ownership of the land at the Sustainable Business Park, and will likely enter long-term land-lease agreements with prospective tenants. The relationship between the DPW and tenants will be structured to capture synergies that advance the business objectives of tenants and support the future of DPW’s solid waste management system.

Submission Requirements

In order to provide Respondents an equal opportunity for consideration, adherence to a standardized submission format is required as part of this RFI, including 12-point font and 1 inch margins. The format of each submission must contain the following elements in the order listed below, organized into these separate numbered chapters, for DPW to consider the submission complete and responsive, with a maximum of 50 pages. Responses shall be submitted electronically. A page allocation is suggested below by chapter, but can be adjusted by the Respondent as needed to meet the 50-page maximum. There is no minimum page requirement. Submissions should not include the disclosure of confidential or proprietary information at any point as all submissions are subject to the Freedom of Information Act.

It should also be noted that submitting a response to this RFI in no way constitutes or implies a contract or agreement in any way. Similarly, the failure to submit a response to this RFI will not disqualify or result in penalty if and when evaluating the merits of a prospective proposal at a later date.

1. Cover Letter (2 pages)
2. Description of Proposed Technology (8 pages)
3. Targeted Material Stream (3 pages)
4. Environmental Impact (3 pages)
The following descriptions provide guidelines to each Respondent for the information to provide in its submission.

**Cover Letter (2 pages)**

The cover letter must be on Respondent letterhead and signed by a Respondent representative empowered to enter into contracts with the County on the Respondent’s behalf. It must contain at least the following information:

- Full name and location of the Respondent;
- Identification of any other member organization of the Respondent Team and a discussion of the planned role for each firm;
- A brief summary of the proposed process or technology, describing its scale and technology status, the locations at which the process or technology has been used, any outstanding features of the process or technology and its applicability as part of the Sustainable Business Park.

**Description of Proposed Process or Technology (8 pages)**

The description of Respondents’ proposed process or technology shall detail the type of waste conversion technology or process being proposed, including the methodology, proposed throughput, inputs and outputs. The description may include, for example, a process flow diagram, equipment arrangement, mass balance, and system performance data. If applicable, the need for interconnection with utilities shall be identified. Any unique or outstanding feature of the technology shall be presented, along with a description of the energy/products produced, the types of air emissions, waste products generated and how they will be managed, any pre-processing of material required prior to its introduction to the technology, and the nature and amount of process residue produced. The amount of acreage needed to host the facility shall be specified. The approximate capital investment required to develop, design, construct and commission the facility shall be provided. The material presented should be descriptive only – any calculations, formulae, academic papers, articles, test results, press releases or other supporting material shall be referenced and included in the Supporting Material section described below.

**Targeted Input/Output Material Streams (3 pages)**

In this section Respondents shall outline the material stream which their technology or process targets. Descriptions shall include ideal sources, composition and volumes of process material as well as any requisite pre-processing or contamination limits. Respondents shall clearly indicate intention or means to utilize waste streams generated outside of Kent County.

In addition, Respondents shall include information about their outputs (products/services and by-products or residues) from the system process, and identify potential customers for their outputs.

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10 Note: Michigan DEQ is drafting new Part 115 guidance for solid waste facility designations; currently the residue threshold is 10%, proposed is 15%.
Respondents shall also identify the locations of potential customers and how they anticipate transporting their outputs.

Environmental Impact (3 pages)

In this section Respondents shall highlight their technology or process capacity to positively impact the local and regional environment by:

- Preventing material from entering the waste stream;
- Recovering materials from the waste stream and diverting material from disposal;
- Reducing need for exporting recyclable materials to export markets; and/or
- Reducing greenhouse gas emissions through another mechanism.
- Other, as identified by the Respondent

Risk Allocation (3 pages)

Without disclosing confidential or proprietary information, Respondents shall describe their business model and the allocation of risk associated with their technology.

In this section, Respondents shall describe how their technology will be designed, planned, permitted, constructed, tested, owned, operated and maintained. This description shall include the capital financing requirements of the technology, anticipated capital expenses (a range is sufficient), whether Respondents prefer to own or lease land, what the Respondent requires of the DPW for project success, and any other additional business information that is critical to the sustainability of the technology.

The Respondent shall make clear if they would be open to leasing structures tied to project benchmarks (i.e. product sales, diversion rate, etc.) that control DPW’s solid waste system costs and advance the economic objectives of the DPW.

Economic Impact (3 pages)

In this section, Respondents shall address what economic impacts will be created as a result of their technology including, but not limited to, job creation, attraction of cross-industrial partners, solutions to waste issues that redirect waste challenges into economic opportunities, and academic support from a research and development center. Respondents should highlight how they anticipate addressing the needs of regional manufacturers and how they will engage local, regional and global partners in utilizing outputs from the Park.

Experience and Qualifications (5 pages)

The purpose of this section is to provide the DPW with an overview description of the Respondent’s organization and the Respondent’s current and prior experience in applying its technology to waste conversion. The Respondent shall:

- Summarize the organization of the company and provide a brief business history, current principal place of business, size, number and types of employees, and any other relevant organizational information. If the Respondent Team includes other organizations (e.g., major technology providers, joint venture partners, guarantors, etc.), such information shall be provided for each Respondent Team organization.
- For Proposers of Commercially-Proven technologies, present the Respondent’s experience record in applying the technology, including the location, size (ton/day, ton/year, etc.), feedstock, operating history and performance characteristics of a least one reference facility. For a Technology to be considered as Commercially-Proven, it must have at least one reference facility
of a size at least 50 percent (50%) of that being offered. The size requirement may be measured at the process unit level, i.e., for a proposed facility with three, 50 ton per hour process lines (150 TPH total) the reference facility should have at least one 25 ton per hour processing line. The reference facility should have demonstrated at least 3 years of successful operation under the assumed operating mode of the proposed facility. Example 1: with a technology proposed to operate continuously (24 hrs./day x 7 days/wk.) with an assumed 90% availability, the reference facility should have demonstrated at least 23,650 hours of successful operation (8,760 x 3 x 0.9). Example 2: For a technology proposed to operate 5 days per week, 16 hours per day, the reference facility should have demonstrated at least 12,480 hours of successful operations (5 days/wk. x 16 hrs./day x 52 wks./yr. x 3 yrs.).

- For each Commercially-Proven reference facility, Respondent shall describe:
  - the nature of its involvement with project development, construction and operation,
  - the name of the owner and/or host of the facility, if not the Respondent,
  - the length of time that the facility has been in operation, including the start date and end date (if no longer in operation), and if not currently operating, the reason for the cessation. If an installation cited is not the Respondent’s, then the Respondent shall identify the entity that developed that installation and the relationship of that entity to the Respondent. Respondents may cite installations that did not use MSW as their primary feedstock.

- For Proposers of Commercially-Demonstrated technologies, present the Respondent’s experience in applying the technology, including the location, size (ton/day, ton/year, etc.), feedstock, operating history and performance characteristics of a least one reference or demonstration facility. For a technology to be considered as Commercially-Demonstrated, it must have at least one reference site of a size at least 10 percent (10%) of that being proposed (measured at the process unit level as described above) and have at least 1,000 hours of successful operation.

  - For each reference or demonstration facility, Respondents shall describe:
    - the nature of its involvement with project development, construction and operation,
    - the name of the owner and/or host of the facility, if not the Respondent,
    - the length of time that the facility has been in operation, including the start date and end date (if no longer in operation), and if not currently operating, the reason for the cessation. If an installation cited is not the Respondent’s, then the Respondent shall identify the entity that developed that installation and the relationship of that entity to the Respondent. Respondents may cite installations that did not use MSW as their feedstock.

- For Proposers of Pilot technologies, present the Respondent’s experience working with the technology, including the location, size (ton/day, ton/year, etc.), feedstock, operating history and performance characteristics of the proposed system. Respondents presenting Pilot technologies are encouraged to include a scalable business model including a high-level cost estimate, technology description, and rendering. Respondents presenting Pilot submissions shall describe:
  - the nature of its involvement with project development, construction and operation,
  - the name of the owner and/or operator of previous versions of the pilot, if not the Respondent,
• the length of time that the pilot has been in development. If a similar or previous version of the cited Pilot is not associated with the Respondent, then the Respondent shall identify the entity that developed said Pilot and the relationship of that entity to the Respondent.
• Respondents may cite Pilot technologies that have not proved successful in the past, although such references shall include a detailed explanation of the obstacles that may have constrained its success, and identify how the nature of the Sustainable Business Park will address these limitations.

Key Team Personnel - Optional (5 pages)

This section shall include the qualifications of the key management and technical staff of the Respondent, especially those involved with the development and operation of the technology that would be located at the Sustainable Business Park. For each individual, include a resume or description of his/her education and professional experience.

Desired Business Relationship (15 pages)

Reserving the right for all possible outcomes following this RFI, DPW could enter into a Service Agreement that embodies the proposed business relationship between the County and the Respondent(s).

Although not a requirement at this time, Respondents are invited to propose terms and conditions for this possible outcome of a Service Agreement, as well as the incorporation of economic and operational terms that have yet to be identified, such as the length of the initial service agreement term and proposed extensions, indicative pricing for targeted feedstock, proposed product and energy revenue sharing mechanisms, royalties, ground lease payments, financing requirements, etc.

Kent County maintains a AAA bond rating and the DPW is well-suited to assist with bonding should it be requested. Furthermore, the DPW is both willing and interested in exploring partnerships with interested Respondents.

Respondents shall indicate if they would be open to the concept of leasing the land under a contract structure tied to product sales that would advance the economic objectives of the County and/or working with other tenants at the Site. Additionally, if the Respondent is proposing to provide a centralized utility services such as steam, chilled water, etc., to other Sustainable Business Park tenants, an indicative price for such services shall be provided.

This section of the response shall also be used by the Respondent to identify any additional technical or background information it desires to receive from the County.

Supporting Materials (15 pages)

In this section, Respondents can include material that details or supplements the description of its technology and experience. Respondents can subdivide this section in any way that conveniently organizes its supporting material and should provide contact information for any available references.
Attachment A: Waste Stream Analysis

The following components of the DPW-managed waste stream are described in detail below, organized by the following solid waste management facilities:

1. South Kent Recycling & Waste Center (Landfill)
2. Waste-to-Energy
3. Recycling & Education Center (Materials Recovery Facility)

South Kent Recycling & Waste Center

Excluding C&D material, ash (generated at the WTE facility), electronic waste and tires, and sludge the pie chart below depicts the composition of MSW by tons of all MSW disposed at the South Kent Recycling & Waste Center. This compositional estimate is derived from the 2016 West Michigan Sustainable Business Forum (WMSBF) report, and in this context “Other Waste” includes textiles, bulky and oversized items, and HHW.12

Composition of MSW Disposed at South Kent Recycling & Waste Center

Clean cement and aggregate is accepted at no charge at the South Kent Recycling & Waste Center. However, there exists little to no processing capacity for C&D mixed materials within Kent County, meaning that all C&D material is disposed at the Landfill or leaves the County (likely also to landfill disposal). Based on anecdotal reports there are significant tonnages of C&D loads disposed at the Landfill.

---

11 In 2016, the Landfill reportedly received 10.75 tons of source separated electronic waste and over 61 tons of tires which were recycled off-site.
From the 2017 Michigan DEQ landfill report, it is estimated that 120,000 tons of C&D debris are generated within Kent County. Of this total, approximately 75,000 tons are disposed in landfills outside of Kent County. Preliminary estimates show that 45,000 tons of C&D is disposed at the Landfill, about 15% of the total material disposed.

Information about landfill operations, such as the definition of acceptable waste and hours of operation can be found on the County’s website, [www.reimaginetrash.org](http://www.reimaginetrash.org)

**Waste-to-Energy**

The composition of materials delivered to the WTE facility was derived from a 2017 waste characterization study conducted by GBB, and is presented in the pie chart below. As defined in the Glossary section, “special waste” refers to material that is non-combustible at the WTE and/or requires unique or special treatment due to size or composition.

![Composition of Total Waste at WTE by Sort Category](image_url)

At the WTE facility, food waste (10%) and “other compostable organics” (13.63%) account for nearly a quarter of the County’s total waste. A relatively small amount of yard waste is present in the waste stream, which is unsurprising since Michigan banned yard waste disposal at MSW landfills in 1995. The substantial prevalence of wood waste was primarily in the form of pallets and related commercial waste materials. The vast majority of paper waste is non-recyclable, a positive sign for overall diversion. However, the significant presence of corrugated cardboard (8% of total waste) indicates that there is room for

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14 The DPW did not previously track C&D material that is disposed at the Landfill. The tonnages presented here are calculated using reference data from several statewide C&D disposal reports to calculate an average per capita C&D generation rate and cross referenced this figure with population in Kent County. A detailed waste composition study at the Landfill must be carried out to more accurately estimate the total C&D material disposed.


16 Examples of Special Waste includes HHW, medical waste, kitchen appliances, compact-fluorescent lightbulbs, mattresses, etc.
improvement. Plastic film and “other plastics” represent almost all the plastic waste observed and should also be noted as materials for which a market or processing could potentially be implemented.

The combustion residue that is generated at the WTE facility is trucked to the ash monofill located at the South Kent Recycling & Waste Center. The bottom ash is processed using a rare earth magnet to separate saleable ferrous metals.

**Recycling & Education Center**

Recyclables received at the Recycling & Education Center are from curbside collection by the City of Grand Rapids and private haulers within a ten county region around Kent County. DPW’s recycling drop-off stations also contributed to the overall tonnage.

The Kent County MRF processes 18-20 tons per hour for approximately 9 hours per day, 6 days per week. Sorting labor at the facility is provided through a partnership with County’s Work Release program. The table below lists recyclable materials acceptable at the facility and the following pie chart depicts the breakdown of materials recovered and marketed from the MRF.

<table>
<thead>
<tr>
<th>Accepted Recyclables at MRF</th>
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<tbody>
<tr>
<td><strong>Category</strong></td>
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<td><strong>Paper</strong></td>
</tr>
<tr>
<td><strong>Plastic</strong></td>
</tr>
<tr>
<td><strong>Glass</strong></td>
</tr>
<tr>
<td><strong>Metal</strong></td>
</tr>
</tbody>
</table>

See more information on accepted materials [http://www.reimaginetrash.org/recycle/recycling-accepted-material/](http://www.reimaginetrash.org/recycle/recycling-accepted-material/).

![Kent County Recycling & Education Center (MRF)](image)

*Figure 6 - Breakdown of Materials at MRF*[^17]

The materials that are not recovered and marketed from the MRF include residue material such as fines and small plastics that elude the sorting process.

[^17]: Kent County Department of Public Works, MRF Outbound Tonnage. 2017
Attachment B: Sustainable Business Park Opportunity

THE OPPORTUNITY

Attract new business and investment to West Michigan while accelerating our progress toward a more sustainable community.

REIMAGINE TRASH

2020

REIMAGINETRASH.ORG

2030

The Kent County Dept. of Public Works has the opportunity to put West Michigan on the map as a national leader in recycling and waste reduction while helping protect our air, land and Great Lakes. Each year, Kent County DPW processes over 1 billion pounds of trash, of which more than 75% could be reused, recycled or repurposed. The Kent County DPW has set a bold goal to divert 90% of trash from the landfill by 2030, and the Sustainable Business Park is a key part of achieving this goal. This new approach to cutting back on trash dumped in the South Kent Landfill just makes sense: It will extend the life of the current landfill, protect the environment, and create new jobs and spark investment in our community.

SUSTAINABLE BUSINESS PARK

Building a Sustainable Business Park in Kent County will help our community cut down on trash buried in landfills and attract investment and jobs from companies that convert waste into usable products. The Park will take waste materials that would otherwise be dumped into a landfill and reuse or recycle those materials into products like compost for agriculture, fuel pellets, plastic pellets for new plastic products, biofuels and textiles. A variety of complementary businesses, entrepreneurs and startups that need access to raw materials could tap into these reclaimed or converted materials, incorporating them into their production processes or transforming them into entirely new products. The Park has tremendous potential for preserving open space, establishing a center for innovation, and both producing and using renewable energy to power operations, which will help save money on electricity costs and further protect our air and Great Lakes.

OUR PLAN OF ACTION

We’re bringing together national and local experts to engage in a plan for the 200-acre Sustainable Business Park to make West Michigan a national leader in circular economy thinking. The plan will look at the necessary improvements, costs, funding sources, and a proposed implementation schedule. As part of the plan, the DPW is actively working with the business community to attract potential tenants and complementary technologies.

A TRIPLE BOTTOM LINE WIN

It’s a win for the people of West Michigan who can rest assured that their waste will continue to be managed responsibly but in a way that benefits future generations instead of burdening them. It’s a win for the planet when we look toward innovative ways to reintroduce discards back into the value stream as feedstock, plastic pellets, fuels, & more. It’s a win for our economy when we localize the processing of materials. The Sustainable Business Park will support local jobs and our West Michigan economy, all while capturing the $52 million in ‘easily recoverable’ materials of value that are currently going into landfills in West Michigan.

PROJECT CONTACT

Kristen Wieland | 616.632.7923 | kristen.wieland@kentcountymi.gov | www.reimaginetrash.org/vision
Sustainable Business Park Master Plan

APPENDIX K

RFI Evaluation Summary Matrix
## Kent County Sustainable Business Park

**RFP Evaluation Matrix**

**May 24, 2018** (for May 29th work session)

### EVALUATION ITEMS

<table>
<thead>
<tr>
<th>Scorecard Technology Type</th>
<th>Description</th>
<th>Pre-Selected</th>
<th>Pre-Selected Problems</th>
<th>Proposed Solutions</th>
<th>Preferred Business Arrangements</th>
<th>Financial Data</th>
<th>Land</th>
<th>Site Considered</th>
<th>Status</th>
<th>Notes</th>
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<td><strong>Reported Metrics</strong></td>
<td><strong>Prefered Business Arrangements</strong></td>
<td><strong>Financial Data</strong></td>
<td><strong>Notes</strong></td>
<td><strong>Status</strong></td>
<td><strong>Notes</strong></td>
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<td><strong>Mixed waste processing, Alberta</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
</tr>
<tr>
<td><strong>Michigan Tech University</strong></td>
<td><strong>Mixed waste processing, Alberta</strong></td>
<td><strong>Mixed waste processing, Alberta</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
</tr>
<tr>
<td><strong>Synthetic Energy Inc.</strong></td>
<td><strong>Mixed waste processing, Alberta</strong></td>
<td><strong>Mixed waste processing, Alberta</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
<td><strong>Mixed waste processing, Canada</strong></td>
</tr>
<tr>
<td>FEEDSTOCK/ TECHNOLOGY LEVEL</td>
<td>Green Energy Experts</td>
<td>Electromagnetic Induction</td>
<td>Energy Inc. Park</td>
<td>Syngas for Heat and Power, Electricity, Hot Water and Steam, Diesel, Ethanol, Gasoline, Jet Fuel</td>
<td>35,100 TPY or 100 TPD of carbon rich material</td>
<td>5%</td>
<td>$32 to $35 million</td>
<td>5 Acres</td>
<td>95%</td>
<td>95%</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>QCI-estech</td>
<td>Proposing to employ a demonstration plant that thermomechanically processes mixed waste, yielding nearly 100% carbon, inorganic matter, recyclables and energy. QCI's unique Remolecularization process converts plastic waste into chemicals, fuels, and solvents, and their two-phase Tellus technique converts scrap tires into commercially valuable byproducts and ultimately carbon black, chemicals and fuel.</td>
<td>Electromagnetic Induction</td>
<td>Mixed waste of any kind is fed to the &quot;Electromagnetic Induction Heating System (EIHS)&quot; and through electromagnetic induction is super heated to initiate syngas and thereby produce a number of outputs.</td>
<td>Syngas for Heat and Power, Electricity, but water and steam, diesel, infrared, gasoline, jet fuel</td>
<td>35,100 TPY or 100 TPD of carbon rich material</td>
<td>$30 million</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This seems absurd and it seems like it is rife with calculation errors. The claim that 100 tons per day of waste/tires can yield 1 million gallons of water seems impossible without adding 1 million gallons of water to the equation.
<table>
<thead>
<tr>
<th>Respondent</th>
<th>Project</th>
<th>Proposal</th>
<th>Ingenuity Contract Solutions</th>
<th>Owner/Operator, JV, long-term contracts</th>
<th>Required</th>
<th>Estimated</th>
<th>Proposed Service Fee</th>
<th>Capital Investment Required</th>
<th>Site Creation</th>
<th>Land / Space Required</th>
<th>Required Time to Implement</th>
<th>Biggest Drawback</th>
<th>Biggest Plus</th>
</tr>
</thead>
</table>
|quot AmidFit| Organics Composting| ASP Composting of yard, food, wool, and household waste; Proposes a composting facility | Compost/Pellet Ameliorant | 75,000,000, depending on configuration of processes to be determined by applicant | $210 million (US) for initial operation and expansion | 5 years | $100,000 | $20,000,000 | 100,000 | 10,000 square feet | 10 years | Unclear - very limited response | Low |}

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Project</th>
<th>Proposal</th>
<th>Compost Solutions</th>
<th>Owner/Operator, JV, long-term contracts</th>
<th>Required</th>
<th>Estimated</th>
<th>Proposed Service Fee</th>
<th>Capital Investment Required</th>
<th>Site Creation</th>
<th>Land / Space Required</th>
<th>Required Time to Implement</th>
<th>Biggest Drawback</th>
<th>Biggest Plus</th>
</tr>
</thead>
</table>
|CWS Inc. | Mixed Waste and Organics | Mixed Wt Composting | Mixed Wt Composting | Normally CWS acts as a bystander providing a service that is not funded | $200 million (US) for expansion | 10 years | $100,000 | $200,000 | 100,000 | 10,000 square feet | 10 years | Unclear - very limited response | Low |}

| Respondent | Project | Proposal | West Virginia Solid Waste Authority | Owner/Operator, JV, long-term contracts | Required | Estimated | Proposed Service Fee | Capital Investment Required | Site Creation | Land / Space Required | Required Time to Implement | Biggest Drawback | Biggest Plus |
|------------|---------|----------|West Virginia Solid Waste Authority | West Virginia Solid Waste Authority | $200 million (US) for expansion | 5 years | $100,000 | $200,000 | 100,000 | 10,000 square feet | 10 years | Unclear - very limited response | Low |}

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Project</th>
<th>Proposal</th>
<th>Composting</th>
<th>Owner/Operator, JV, long-term contracts</th>
<th>Required</th>
<th>Estimated</th>
<th>Proposed Service Fee</th>
<th>Capital Investment Required</th>
<th>Site Creation</th>
<th>Land / Space Required</th>
<th>Required Time to Implement</th>
<th>Biggest Drawback</th>
<th>Biggest Plus</th>
</tr>
</thead>
</table>
|Synagro | Mixed Waste and Organics | Mixed Wt Composting | Mixed Wt Composting | Normally Synagro acts as a bystander providing a service that is not funded | $200 million (US) for expansion | 5 years | $100,000 | $200,000 | 100,000 | 10,000 square feet | 10 years | Unclear - very limited response | Low |}

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Project</th>
<th>Proposal</th>
<th>Composting</th>
<th>Owner/Operator, JV, long-term contracts</th>
<th>Required</th>
<th>Estimated</th>
<th>Proposed Service Fee</th>
<th>Capital Investment Required</th>
<th>Site Creation</th>
<th>Land / Space Required</th>
<th>Required Time to Implement</th>
<th>Biggest Drawback</th>
<th>Biggest Plus</th>
</tr>
</thead>
</table>
|Cocoa Corp | Mixed Waste and Organics | Mixed Wt Composting | Mixed Wt Composting | Normally Cocoa Corp acts as a bystander providing a service that is not funded | $200 million (US) for expansion | 5 years | $100,000 | $200,000 | 100,000 | 10,000 square feet | 10 years | Unclear - very limited response | Low |}

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Project</th>
<th>Proposal</th>
<th>Composting</th>
<th>Owner/Operator, JV, long-term contracts</th>
<th>Required</th>
<th>Estimated</th>
<th>Proposed Service Fee</th>
<th>Capital Investment Required</th>
<th>Site Creation</th>
<th>Land / Space Required</th>
<th>Required Time to Implement</th>
<th>Biggest Drawback</th>
<th>Biggest Plus</th>
</tr>
</thead>
</table>
|Spire | Mixed Waste and Organics | Mixed Wt Composting | Mixed Wt Composting | Normally Spire acts as a bystander providing a service that is not funded | $200 million (US) for expansion | 5 years | $100,000 | $200,000 | 100,000 | 10,000 square feet | 10 years | Unclear - very limited response | Low |}

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Project</th>
<th>Proposal</th>
<th>Composting</th>
<th>Owner/Operator, JV, long-term contracts</th>
<th>Required</th>
<th>Estimated</th>
<th>Proposed Service Fee</th>
<th>Capital Investment Required</th>
<th>Site Creation</th>
<th>Land / Space Required</th>
<th>Required Time to Implement</th>
<th>Biggest Drawback</th>
<th>Biggest Plus</th>
</tr>
</thead>
</table>
|EcoPro | Mixed Waste and Organics | Mixed Wt Composting | Mixed Wt Composting | Normally EcoPro acts as a bystander providing a service that is not funded | $200 million (US) for expansion | 5 years | $100,000 | $200,000 | 100,000 | 10,000 square feet | 10 years | Unclear - very limited response | Low |}

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Project</th>
<th>Proposal</th>
<th>Composting</th>
<th>Owner/Operator, JV, long-term contracts</th>
<th>Required</th>
<th>Estimated</th>
<th>Proposed Service Fee</th>
<th>Capital Investment Required</th>
<th>Site Creation</th>
<th>Land / Space Required</th>
<th>Required Time to Implement</th>
<th>Biggest Drawback</th>
<th>Biggest Plus</th>
</tr>
</thead>
</table>
|Pless Recyling Technologies | Mixed Waste and Organics | Mixed Wt Composting | Mixed Wt Composting | Normally Pless Recycling acts as a bystander providing a service that is not funded | $200 million (US) for expansion | 5 years | $100,000 | $200,000 | 100,000 | 10,000 square feet | 10 years | Unclear - very limited response | Low |}
<table>
<thead>
<tr>
<th>FEEDSTOCK/ TECHNOLOGY LEVEL</th>
<th>EVALUATION ITEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odom Reuse</td>
<td></td>
</tr>
<tr>
<td>Goldbude</td>
<td></td>
</tr>
<tr>
<td>Proposed products:</td>
<td></td>
</tr>
<tr>
<td>Mulch, recycled, compost,</td>
<td></td>
</tr>
<tr>
<td>hardwood</td>
<td></td>
</tr>
<tr>
<td>Residual products:</td>
<td></td>
</tr>
<tr>
<td>Sawdust, woodchips</td>
<td></td>
</tr>
<tr>
<td>Residual disposal requirements:</td>
<td></td>
</tr>
<tr>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Desired business arrangements:</td>
<td></td>
</tr>
<tr>
<td>Full cycle fund</td>
<td></td>
</tr>
<tr>
<td>Capital investment required:</td>
<td></td>
</tr>
<tr>
<td>$60-70 million for MRF + WTE</td>
<td></td>
</tr>
<tr>
<td>Land / space required:</td>
<td></td>
</tr>
<tr>
<td>8 acres</td>
<td></td>
</tr>
<tr>
<td>Utilities required:</td>
<td></td>
</tr>
<tr>
<td>Waste, sewer, rail</td>
<td></td>
</tr>
<tr>
<td>Diversion estimate 2020</td>
<td></td>
</tr>
<tr>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>90%</td>
<td></td>
</tr>
<tr>
<td>Time to implement</td>
<td></td>
</tr>
<tr>
<td>~40 months</td>
<td></td>
</tr>
<tr>
<td>Biggest Drawback</td>
<td></td>
</tr>
<tr>
<td>Can't process PVC</td>
<td></td>
</tr>
<tr>
<td>Can provide an onsite RDF</td>
<td></td>
</tr>
<tr>
<td>Can guarantee an RFP</td>
<td></td>
</tr>
<tr>
<td>Can include some unrealistic demands from the County</td>
<td></td>
</tr>
</tbody>
</table>

Kent County Sustainable Business Park

RFI Evaluation Matrix

May 24, 2018 (for May 29th work session)
## Kent County Sustainable Business Park

### RFI Evaluation Matrix

May 24, 2018 (for May 29th work session)

<table>
<thead>
<tr>
<th>Generic technology type:</th>
<th>Feasibility Overview Description (75 words or less)</th>
<th>Development/Technology Partners</th>
<th>Proposed products:</th>
<th>Proposed service fees: ($/ton)</th>
<th>Proposed revenue sharing: (if any)</th>
<th>Capital Investment required: ($ millions)</th>
<th>Jobs created: (FTE)</th>
<th>Land / space required: (x acres)</th>
<th>Utilities required: (waste, sewer, rail, etc.)</th>
<th>Diversion estimate 2020</th>
<th>Diversion estimate 2030</th>
<th>Time to implement</th>
<th>Biggest Drawback</th>
<th>Biggest Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEXTILES</td>
<td>Demonstrated</td>
<td>Taconic Carpet Recycling Takes in commercial carpet tiles and cleans them and resells them. Carpet.</td>
<td>150/300 TPI</td>
<td>Y</td>
<td>Would like to lease land from the County to open new operation.</td>
<td>Family operation</td>
<td>5-9 acres</td>
<td>Electric and water</td>
<td>Currently has disposed of many carpets because it stores them on-site. It is possible for the County to dispose of them if he doesn’t find an outlet soon.</td>
<td>CNG fleet, tire recycling, recyclables brokerage service</td>
<td>Yes</td>
<td>2020</td>
<td>2030</td>
<td>2021</td>
</tr>
</tbody>
</table>

---

### Generic technology types:
- Recycling
- Organics
- Textiles
- Mixed waste processing
- MBT
- Transportation fuels, contained fuel and power, biofuels, etc.

### Feasibility Overview Description (75 words or less)
- Carpet Recycling: Takes in commercial carpet tiles and cleans them and resells them. Carpet.
- 150/300 TPI: Y
- Would like to lease land from the County to open new operation.
- Family operation: 5-9 acres
- Electric and water: Currently has disposed of many carpets because it stores them on-site. It is possible for the County to dispose of them if he doesn’t find an outlet soon. CNG fleet, tire recycling, recyclables brokerage service

### Demonstration
- Taconic Carpet Recycling
- Takes in commercial carpet tiles and cleans them and resells them.
- Carpet: 150/300 TPI
- Would like to lease land from the County to open new operation.
- Family operation: 5-9 acres
- Electric and water: Currently has disposed of many carpets because it stores them on-site. It is possible for the County to dispose of them if he doesn’t find an outlet soon.

### Pilot
- Pilot
- Taconic Carpet Recycling
- Takes in commercial carpet tiles and cleans them and resells them.
- Carpet: 150/300 TPI
- Would like to lease land from the County to open new operation.
- Family operation: 5-9 acres
- Electric and water: Currently has disposed of many carpets because it stores them on-site. It is possible for the County to dispose of them if he doesn’t find an outlet soon.
<table>
<thead>
<tr>
<th>FEEDSTOCK/ TECHNOLOGY LEVEL</th>
<th>EVALUATION ITEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WTE Ash</td>
<td></td>
</tr>
<tr>
<td>InAashco</td>
<td></td>
</tr>
<tr>
<td>Lab USA</td>
<td></td>
</tr>
<tr>
<td>Pure Recovery Group LLC</td>
<td></td>
</tr>
</tbody>
</table>

### InAashco
- **Proposed Products:** Metal recovery from WTE ash
- **Size:** 42,000 tpy (120,000 mined ash)
- **Proposed Service fees:** $0 per ton
- **Proposed Revenue Sharing:** Unspecified
- **Capital Investment Required:** $7.2 million
- **Jobs Created:** 8 full-time employees
- **Land/Space Required:** 3 acres
- **Utilities Required:** 3 phase electric, water, process sewer
- **Time to Implement:** 12-14 months
- **Biggest Drawback:** No service fee, but under InAashco’s preferred arrangement, the County would incur debt service of $30-35/ton of fresh ash

### Lab USA
- **Proposed Products:** Metal recovery from WTE ash
- **Size:** 120,000 tpy of fresh and 140,000 mined ash
- **Proposed Service fees:** $7.5 million
- **Proposed Revenue Sharing:** Unspecified
- **Capital Investment Required:** $8-10 million
- **Jobs Created:** 20 full-time employees
- **Land/Space Required:** 5 acres
- **Utilities Required:** 3 phase electric, water, process sewer
- **Time to Implement:** 9-18 months
- **Biggest Drawback:** Will not mine the existing Monofill

### Pure Recovery Group LLC
- **Proposed Products:** Metal recovery from WTE ash
- **Size:** 61,800 tpy of current WTE ash
- **Proposed Service fees:** Unspecified
- **Proposed Revenue Sharing:** Unspecified
- **Capital Investment Required:** $8-10 million
- **Jobs Created:** 20 full-time employees
- **Land/Space Required:** 5 acres
- **Utilities Required:** 3 phase electric, water, process sewer
- **Time to Implement:** 12-14 months
- **Biggest Drawback:** Will not mine the existing Monofill
Sustainable Business Park Master Plan

APPENDIX L

Offtake Market Analysis
<table>
<thead>
<tr>
<th>Company</th>
<th>City</th>
<th>Industry Description</th>
<th>Recycling Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amway Corporation</td>
<td>Ada</td>
<td>Health, Beauty, and Home Product Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Johnson Controls Inc. (Auto Experience)</td>
<td>Grand Rapids</td>
<td>Motor Vehicle Seating and Interior Trim Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Herman Miller Inc.</td>
<td>Zeeland</td>
<td>Office Furniture Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Steelcase Inc.</td>
<td>Grand Rapids</td>
<td>Office Furniture Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Grand Rapids Public Schools</td>
<td>Grand Rapids</td>
<td>Elementary and Secondary Schools</td>
<td>Primary</td>
</tr>
<tr>
<td>Gentex Corporation</td>
<td>Zeeland</td>
<td>Electro Optic Technology Manufacturing, Auto Industry</td>
<td>Secondary</td>
</tr>
<tr>
<td>Magna International Inc.</td>
<td>Holland</td>
<td>Exterior Automotive Trim Products Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Haworth Inc.</td>
<td>Holland</td>
<td>Office Furniture Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Lacks Enterprises, Inc.</td>
<td>Grand Rapids</td>
<td>Manufacturer of Interior and Exterior Automotive Trim Parts</td>
<td>Secondary</td>
</tr>
<tr>
<td>Grand Rapids Community College</td>
<td>Grand Rapids</td>
<td>Junior Colleges</td>
<td>Primary</td>
</tr>
<tr>
<td>City of Grand Rapids</td>
<td>Grand Rapids</td>
<td>Local government</td>
<td>Secondary</td>
</tr>
<tr>
<td>Alcoa Howmet Corp.</td>
<td>Whitehall</td>
<td>Precision Castings of Titanium, Superalloy, and Aluminum Alloys</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Gordon Food Service</td>
<td>Wyoming</td>
<td>Food Service Distribution, Warehouse and Storage</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Wolverine World Wide</td>
<td>Rockford</td>
<td>Footwear Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Shape Corporation</td>
<td>Grand Haven</td>
<td>Fabricated Structural Metal Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Consumers Energy</td>
<td>Grand Rapids</td>
<td>Electric Power Generation</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Forest Hills Public Schools</td>
<td>Cascade</td>
<td>Elementary and Secondary Schools</td>
<td>Primary</td>
</tr>
<tr>
<td>Rockford Public Schools</td>
<td>Rockford</td>
<td>Elementary and Secondary Schools</td>
<td>Primary</td>
</tr>
<tr>
<td>JSU Corporation (GHSP)</td>
<td>Grand Haven</td>
<td>Durable Goods Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>JSU Corporation</td>
<td>Grand Haven</td>
<td>Durable Goods Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Kentwood Public Schools</td>
<td>Kentwood</td>
<td>Elementary and Secondary Schools</td>
<td>Primary</td>
</tr>
<tr>
<td>Benteler Automotive</td>
<td>Grand Rapids</td>
<td>Motor Vehicle Metal Stamping</td>
<td>Secondary</td>
</tr>
<tr>
<td>ADAC Automotive</td>
<td>Cascade</td>
<td>Motor Vehicle Seating and Interior Trim Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Gerber Products</td>
<td>Fremont</td>
<td>Canned Fruit and Vegetables, Baby Food</td>
<td>Secondary</td>
</tr>
<tr>
<td>Challenge Manufacturing</td>
<td>Walker</td>
<td>Motor Vehicle Metal Stamping</td>
<td>Secondary</td>
</tr>
<tr>
<td>Dematic Corp</td>
<td>Grand Rapids</td>
<td>Conveyor and Conveying Equipment Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Royal Technologies</td>
<td>Hudsonville</td>
<td>All Other Plastics Product Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Hart &amp; Cooley, Inc.</td>
<td>Grand Rapids</td>
<td>Heating Equipment Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Knoll, Inc. (Muskegon)</td>
<td>Muskegon</td>
<td>Design and Manufacture of Office Furniture</td>
<td>Secondary</td>
</tr>
<tr>
<td>Knape &amp; Vogt Manufacturing Company</td>
<td>Grand Rapids</td>
<td>Office Furniture (including Fixtures) Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Pridgeon &amp; Clay, Inc.</td>
<td>Grand Rapids</td>
<td>Motor Vehicle Metal Stamping</td>
<td>Secondary</td>
</tr>
<tr>
<td>Cascade Engineering</td>
<td>Grand Rapids</td>
<td>Plastic Product Manufacturing, Multiple Industries</td>
<td>Secondary</td>
</tr>
<tr>
<td>Kellogg’s</td>
<td>Battle Creek</td>
<td>Breakfast Cereal Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Irwin Seating Company</td>
<td>Grand Rapids</td>
<td>Institutional Furniture Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Display Pack, Inc.</td>
<td>Cedar Springs</td>
<td>Design and Manufacturing of Plastic Packaging, Multiple Industries</td>
<td>Secondary</td>
</tr>
<tr>
<td>Haviland USA</td>
<td>Grand Rapids</td>
<td>Chemical Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Bata Plastics</td>
<td>Grand Rapids</td>
<td>Plastics re-manufacturer</td>
<td>Secondary</td>
</tr>
<tr>
<td>Kamps Pallets</td>
<td>Grand Rapids</td>
<td>Pallets distributor</td>
<td>Secondary</td>
</tr>
<tr>
<td>Duna USA</td>
<td>Ludington</td>
<td>Plastic Fabrication Company</td>
<td>Secondary</td>
</tr>
<tr>
<td>The Brill Company</td>
<td>Ludington</td>
<td>Furniture Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Metalworks Inc</td>
<td>Ludington</td>
<td>Office Furniture Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Carroom Game Company</td>
<td>Ludington</td>
<td>Board Game Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Surface Expressions</td>
<td>Ludington</td>
<td>Countertop Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Kaines Manufacturing</td>
<td>Ludington</td>
<td>Display Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Ludington Components/Haworth</td>
<td>Ludington</td>
<td>Furniture Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Motion Industries</td>
<td>Ludington</td>
<td>Parts Manufacturing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Whitehall Industries</td>
<td>Ludington</td>
<td>Fabricated Aluminum Extrusions</td>
<td>Secondary</td>
</tr>
<tr>
<td>Johnson Technologies</td>
<td>Muskegon</td>
<td>Aviation Manufacturer</td>
<td>Secondary</td>
</tr>
<tr>
<td>Pratt &amp; Whitney</td>
<td>Lansing</td>
<td>Manufacturer of Auto parts</td>
<td>Secondary</td>
</tr>
<tr>
<td>Silver Creek Manufacturing</td>
<td>Norton Shores</td>
<td>Metal Stamping and Welding</td>
<td>Secondary</td>
</tr>
<tr>
<td>Nowak Machine Projects</td>
<td>Muskegon</td>
<td>Parts Manufacturing for Machinery</td>
<td>Secondary</td>
</tr>
<tr>
<td>Flairwood Industries</td>
<td>Norton Shores</td>
<td>Cabinet Manufacturer</td>
<td>Secondary</td>
</tr>
<tr>
<td>Port City Die Cast</td>
<td>Muskegon</td>
<td>Aluminum and Zinc Diecaster</td>
<td>Secondary</td>
</tr>
<tr>
<td>Lorin Industries</td>
<td>Muskegon</td>
<td>Aluminum Supply and Finishing</td>
<td>Secondary</td>
</tr>
<tr>
<td>DSC Products</td>
<td>Muskegon</td>
<td>Carpet and Upholstery Manufacturer</td>
<td>Secondary</td>
</tr>
<tr>
<td>DTE Energy</td>
<td>Detroit</td>
<td>Electric and Gas Utility</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Holland Neway International</td>
<td>Muskegon</td>
<td>Manufacturer of Auto Parts</td>
<td>Secondary</td>
</tr>
<tr>
<td>KL Industries</td>
<td>Muskegon</td>
<td>Manufacturer of Outdoor Products</td>
<td>Secondary</td>
</tr>
<tr>
<td>Michigan Adhesive</td>
<td>Spring Lake</td>
<td>Manufacturer of Industrial Grade Adhesives</td>
<td>Tertiary</td>
</tr>
<tr>
<td>GM Wood</td>
<td>Newaygo</td>
<td>Wood Products Manufacturer</td>
<td>Secondary</td>
</tr>
<tr>
<td>Karr Unlimited</td>
<td>Newaygo</td>
<td>Metal Stamping and Machining</td>
<td>Secondary</td>
</tr>
<tr>
<td>Kelley Machining</td>
<td>Shelby</td>
<td>Stamping and Machining</td>
<td>Secondary</td>
</tr>
<tr>
<td>Valley City Metal Finishing</td>
<td>Grand Rapids</td>
<td>Metal plating and Finishing</td>
<td>Secondary</td>
</tr>
<tr>
<td>Alpena Power Company</td>
<td>Alpena</td>
<td>Electric Utility</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Indiana Michigan Power Company</td>
<td>Lansing</td>
<td>Electric Utility</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Alger Delta Cooperative Electric Ass.</td>
<td>Gladstone</td>
<td>Cooperative Electric Utility</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Eckert Power Plant</td>
<td>Lansing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erickson Station</td>
<td>Lansing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lansing Board of Water and Light</td>
<td>Lansing</td>
<td>Lansing Municipal Electric Utility</td>
<td>Tertiary</td>
</tr>
<tr>
<td>St. Mary’s Cement</td>
<td>Detroit</td>
<td>Cement Kiln</td>
<td>Tertiary</td>
</tr>
<tr>
<td>St. Mary’s Cement</td>
<td>Charlevoix</td>
<td>Cement Kiln</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Alpena Cement Plant (LafargeHolcim)</td>
<td>Alpena</td>
<td>Cement Kiln</td>
<td>Tertiary</td>
</tr>
</tbody>
</table>

*NOTE: When possible, company employee numbers are obtained from company staff or websites. Other sources include press reporting and business reporting agencies.*

**When a company has multiple locations, employment is given for each location where possible. Ranking is computed based on aggregated company employment**

**Bolded companies indicate headquarters**
Sustainable Business Park Master Plan

APPENDIX M

Greenhouse Gas WARM Modeling
### GHG Emissions from Baseline Waste Management (MTCO2E):

<table>
<thead>
<tr>
<th>Material</th>
<th>Recycled</th>
<th>Tons Landfilled</th>
<th>Tons Composted</th>
<th>Tons Anaerobically Digested</th>
<th>Total MTCO2E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Cans</td>
<td>74.1</td>
<td>1,870.5</td>
<td>1,579.7</td>
<td>NA</td>
<td>74.1</td>
</tr>
<tr>
<td>Steel Cans</td>
<td>910.8</td>
<td>22,541.0</td>
<td>4,391.7</td>
<td>NA</td>
<td>3,526.0</td>
</tr>
<tr>
<td>Glass</td>
<td>3,526.3</td>
<td>7,806.0</td>
<td>2,820.1</td>
<td>NA</td>
<td>1,543.3</td>
</tr>
<tr>
<td>HDPE</td>
<td>773.5</td>
<td>1,870.0</td>
<td>880.0</td>
<td>NA</td>
<td>503.0</td>
</tr>
<tr>
<td>PET</td>
<td>1,297.7</td>
<td>2,274.5</td>
<td>1,426.8</td>
<td>NA</td>
<td>1,297.7</td>
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<tr>
<td>LCP</td>
<td>NA</td>
<td>4,585.0</td>
<td>11,855.7</td>
<td>NA</td>
<td>14,442.0</td>
</tr>
<tr>
<td>PS</td>
<td>NA</td>
<td>1,629.5</td>
<td>2,820.1</td>
<td>NA</td>
<td>2,820.1</td>
</tr>
<tr>
<td>Corrugated Containers</td>
<td>5,650.0</td>
<td>26,139.9</td>
<td>14,379.7</td>
<td>NA</td>
<td>18,832.2</td>
</tr>
<tr>
<td>Newspaper</td>
<td>5,530.9</td>
<td>2,546.1</td>
<td>315.0</td>
<td>NA</td>
<td>2,855.0</td>
</tr>
<tr>
<td>Office Paper</td>
<td>NA</td>
<td>2,093.9</td>
<td>1,027.0</td>
<td>NA</td>
<td>1,027.0</td>
</tr>
<tr>
<td>Yard trimmings</td>
<td>NA</td>
<td>23,525.0</td>
<td>11,763.0</td>
<td>NA</td>
<td>11,763.0</td>
</tr>
<tr>
<td>Mixed Paper (general)</td>
<td>5,035.7</td>
<td>32,691.9</td>
<td>4,280.5</td>
<td>NA</td>
<td>15,834.0</td>
</tr>
<tr>
<td>Mixed Plastics</td>
<td>945.1</td>
<td>20,611.0</td>
<td>17,011.0</td>
<td>NA</td>
<td>20,611.0</td>
</tr>
<tr>
<td>Mixed Organics</td>
<td>NA</td>
<td>102,115.5</td>
<td>59,167.8</td>
<td>-</td>
<td>59,167.8</td>
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<tr>
<td>Mixed MSW</td>
<td>NA</td>
<td>55,504.9</td>
<td>8,653.7</td>
<td>NA</td>
<td>18,699.0</td>
</tr>
<tr>
<td>Personal Computers</td>
<td>-</td>
<td>14,937.1</td>
<td>1,130.4</td>
<td>NA</td>
<td>1,130.4</td>
</tr>
</tbody>
</table>

Note: A negative value (i.e., a value in parentheses) indicates an emission reduction; a positive value indicates an increase.

### GHG Emissions from Alternative Waste Management Scenario (MTCO2E):

<table>
<thead>
<tr>
<th>Material</th>
<th>Tons Landfilled</th>
<th>Tons Composted</th>
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<th>Total MTCO2E</th>
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<td>-</td>
<td>14,937.1</td>
<td>1,130.4</td>
<td>1,130.4</td>
</tr>
</tbody>
</table>

Total Change in GHG Emissions (MTCO2E):

<table>
<thead>
<tr>
<th>(Alt - Base) MTCO2E</th>
</tr>
</thead>
<tbody>
<tr>
<td>13,518</td>
</tr>
</tbody>
</table>

This is equivalent to...

- Annual emissions from 2,846 Passenger Vehicles
- Conserving 1,521,152 Gallons of Gasoline
- Conserving 563,270 Cylinders of Propane Used for Home Barbecues
- Conserving 72 Railway Cars of Coal
- 0.00078% Annual CO2 emissions from the U.S. transportation sector
- 0.00067% Annual CO2 emissions from the U.S. electricity sector


Emissions estimates provided by this model are intended to support voluntary GHG measurement and reporting initiatives.

- a) For explanation of methodology, see the EPA WARM Documentation.
- b) Emissions estimates provided by this model are intended to support voluntary GHG measurement and reporting initiatives.
- c) The GHG emissions results estimated in WARM indicate the full life-cycle benefits waste management alternatives. Due to the timing of the GHG emissions from the waste management pathways, (e.g., avoided landfilling and increased recycling), the actual GHG implications may accrue over the long-term. Therefore, one should not interpret the GHG emissions implications as occurring all in one year, but rather through time.