

The Edge of Chaos
Wicked Problems Discussion
Glass Recycling in Birmingham
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Participants

Gavin Adams, ADEM
Chenoia Bryant, Edge of Chaos
Michael Churchman, AEC
Tommy Daniels, City of Hoover
Hala Fawal, Edge of Chaos
Alan Gurganus, AEC
David Hooks, Edge of Chaos
Kathleen Kirkpatrick, Blue Horizon Partnership
Eric Kolb, Republic Services
Dennis Leonard, Edge of Chaos
Suzanne Martin, Homewood Environmental Board
Barbara Newman, JCDH
Danielle Pate, City of Hoover
John Paolone, UAB Recycling
Lonnie Pressley, JCDH
Steve Smith, Camp Creek Creations
Uday Vaidya, UAB Department of Engineering
Timothy Wick, Edge of Chaos

Facilitators

Scott Plutchak, Edge of Chaos

Discussion Questions

1. Are there any positive recycling efforts in the state from which we can learn?
2. Why are there not more local companies using recycled glass? Is there something we can do to generate a local market? How do we convince companies to use recycled glass?
3. Do we need different industries? What type of industrial sector has demand that matches our supply?
4. What can we do with glass? Is it possible to develop a new construction process that uses recycled glass? What kind of research should we be doing at UAB to solve this problem?
5. Who will pay for transportation? Can we use mobile processing technology to help involve surrounding communities?
6. What kind of financial support can ADEM or others provide through grants? How do we get this process started?
7. What kind of permits or legislation will be needed to aid our efforts?

8. How can we get local communities to work together to solve this problem?

Discussion Themes

Issues

Current Situation

- Mostly beer and wine bottles dropped off at AEC's Downtown center
- For the last 10 years, Argos paid for hauling of glass to use in cement manufacturing; had to cease due to changes in chemical formula
- Downturn in economy leads to decreased demand for recycled glass
- Need to find equipment to crush glass into different grades and a storage facility
- Partnership with Waste Pro is a short term solution
- Need to create a robust ecosystem for glass recycling in Birmingham

Potential Uses for Glass

- Possibly can be used in manufacturing roadbed materials; covering parking lots
- Use of glass in tires being researched at Auburn
- Used in countertops
- Road paint coated with polymer to prevent runoff
- Use as alternate daily cover at landfill
- Used primarily to enhance thermal properties; possible use is furnace liners; wrapping for trees to prevent forest fires
- Reflective properties can be used for sidewalks
- Possibly used for sedimentation in waterways
- Possibly used in roofing materials
- Requires less energy for bottlers to make bottles using recycled glass than raw materials
- Possibly ship building industries could use recycled glass in construction materials
- If products made from recycled glass have greater utility compared to other products (ie safer, sturdier), this can be the deciding factor in wide scale adoption of recycled glass in industrial process

Local Industries

- Recycled glass can be distributed to small scale users who can easily add value
- Eventually, we will need large scale users capable of handling off put
- Need to get business model right; deal with back end, and worry about logistics of collection afterwards
- Simply dividing by color can add value; need to make sure this is done properly
- Need to be able to provide pulverized glass of different grades to meet a variety of needs

- Recycling markets in Birmingham are paper-centric; will need massive investment to create market for glass
- Shipping costs are prohibitive; getting users and suppliers in a certain radius can help minimize this
- Right now, supply outweighs demand; more potential uses of recycled glass can help take care of volume generated
- Birmingham area does not generate enough tonnage to support massive industries that will use recycled glass; need to demonstrate a continuous flow of recycled glass to support these industries
- If needed, we could possibly double recycled glass output in Birmingham area
- If a group of 6-8 companies can be attracted, with support from municipalities, can create focal point or seed project that can generate a lot of innovation
- Ultimately, have to create a demand before dealing with legislative issues

Legislation and Funding

- Cost of disposal (landfill price) is very cheap, leading more industries to dump waste and use raw materials rather than recycle
- Need to find out if glass for use as alternate daily cover (and other uses) can be permitted
- Use appropriate legislation and funding to create incentives to lure different industries
- If multiple local communities cooperate, the cost for mobile processing equipment can be shared among them
- Municipalities also need to have a role in funding research
- Large lobbies fighting to keep recycled glass out of roads
- Similar to work with the health department, any grant issued by ADEM should ideally be matched by local municipalities; the key is getting all of them on board
- Agreements should be in place before application for grants are submitted
- Need more public involvement

Barriers

- Not enough supply currently to attract large users of recycled glass
- Only viable markets are far away, leading to high shipping costs
- Local communities have failed to cooperate on this issue thus far
- Legislation as a whole does not favor glass recycling in Birmingham

Resources

- Cooperation from ADEM will be imperative
- AEC is the driving force behind most statewide recycling initiatives
- Need to develop more resources in the private sector

- Edge of Chaos and UAB can help generate new ideas for potential glass uses and business ideas
- Areas nationwide (eg North Carolina, New Mexico) that have been successful with glass recycling in their communities
- Local communities of artists and other end users
- Surrounding municipalities are key to this project

Solutions

- Identify more, economically viable uses for recycled glass; if UAB is responsible for discovering these uses, it reflects well on the entire community
- Gain the cooperation of all municipalities; convince them to pledge funding; matched with state funding, this could be the initiative needed to attract more industries
- Once potential industries have been determined, work on creating a continuous flow of recycled glass able to meet the needs of industrial partners