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Feedstock Regionalization and Consolidation: Phoenix, AZ

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Executive Summary

This report looks generally at municipal solid waste feedstock regionalization and consolidation with a focus on green organics and more specifically focuses on the feasibility of regionalization and consolidation for the Phoenix Metropolitan Area. Feedstock refers to recyclable solid waste material. Green organics includes yard and food waste, both separately and combined. Regionalization refers to standardizing services, facilities and equipment over an area. Consolidation is the aggregation of feedstock into a few locations.

For this research, background research was performed on regionalization and on specific municipalities in the Phoenix Metro Area and personal communication with various municipalities and regional organizations was performed. Specifically, three case studies were examined for regionalization: the Delaware Solid Waste Authority, Massachusetts, and King County, WA.

It is recommended that if Phoenix should pursue regionalization, that it starts small with one partner-city. Additionally, it is recommended that no new infrastructure is built and that current facilities are utilized.

Background and Purpose

Walton Sustainability Solutions Initiatives (WSSI) approached ASU's Urban Sustainability Best Practices course led by Professor Nalini Chhetri in the School of Sustainability to examine regionalization and consolidation of green organic feedstock in the Phoenix area. Feedstock refers to recyclable solid waste material. Green organics includes yard and food waste, both separately and combined. Regionalization refers to standardizing services, facilities and equipment over an area. Consolidation is the aggregation of feedstock into a few locations. Each municipality within the region may accept different types of waste materials under its green organics recycling programs and may combine different waste materials during green organics' collection or processing, which greatly complicates our research and comparative analysis. Realizing that WSSI is mostly interested in yard waste recycling, this report attempts to focus on green organics as grass and tree trimmings and basic yard waste exclusive of other organic and food waste, whenever the data allows.

Targeting green organic waste recycling is likely due to the fact that organic materials (including landscape waste, food, and wood) make between 1/3 to 2/3 of all garbage, depending on season and location**,** and rather than dumping it into landfills, most of it can be effectively mulched or composted for reuse (Cascadia Consulting Group, 2014). Green organics appear to be the lowest-hanging fruit for significant positive impact (both environmentally and financially) within the Phoenix's solid waste management program. According to the EPA, Americans generate 180M tons of garbage per year and yard waste (grass, leaves, plant trimmings, and tree branches) is about 18% or 32M tons of it (City of Westminster, n.d.). In 2013, the city of Mesa recycled 18K tons of yard waste saving money and the environment in the process (City of Mesa, 2014). The newly implemented green recycling program in Phoenix is based on the premise that recycling green organics is less than half the cost of handling garbage ($17 vs. $38 per ton), including cost of transport, landfilling, and paying environmental fees (Reid, 2013).

Targeting regionalization and consolidation is likely due to the fact that larger centralized processing operation will prove more cost-effective and strategically viable in the long term. Economies of scale are critical for any type of waste management operations and fragmentation and decentralization are synonymous with suboptimal efficiencies and restricted scalability. Thus putting green organics recycling and regionalization/consolidation together appears to be a low-risk and financially sound solid waste management strategy for the Phoenix area. Further examination is needed, however, to more diligently expose and scrutinize its strengths and weaknesses.

Primarily WSSI, along with the City of Phoenix, is interested in this research as regionalization and consolidation of these feedstock may have many associated benefits, of which include the hopes of increased diversion from landfills. In order to determine the feasibility of

implementing regionalization and consolidation of feedstock and the current and best practices for green organics, examples from other municipalities and background literature are examined. This report analyzes the costs and benefits of regionalization, legal entities associated with regionalization, how and why the regionalization was implemented, goals and strategies, funding sources, and membership structure. The same areas are explored for green organics. The goal for this paper is to examine best practices from other municipalities in order to give a thorough overview of regionalization and green organics collection and processing.

Methods

This report explores various topics for feedstock regionalization and consolidation. The first topic is that of regionalization for municipal solid waste (MSW), which can include household hazardous waste, MSW facilities and equipment, garbage, recycling, and green organics. The second topic is that of consolidation of the above materials. The third topic relates to current practices regarding the collection, processing, and end purpose (for instance; mulch, compost, how it is sold) for green organics. The fourth topic refers to best practices for green organics collection, processing, and end purpose. This report also analyzes the feasibility of regionalization, consolidation, and centralization for the Phoenix metropolitan area.

For regionalization and consolidation of feedstock, the following case examples were explored in depth: Delaware Solid Waste Authority (DSWA), Massachusetts, and King County, WA.

In order to collect this data, this research includes personal communication with various municipalities and regional authorities and literature reviews. Personal communication with the cities and regional authorities includes both email and phone conversations. Literature reviews include peer-reviewed sources, city and state publications, and extensive research on city and state websites.

Best Practices for Feedstock Regionalization and Consolidation

Three cases of regionalization were examined for best practices: Delaware Solid Waste Authority, Massachusetts, and King County, WA. The following case studies examine how and why the regionalization was implemented, legal entities associated with regionalization, goals and strategies, funding sources, and membership structure. Additionally, this reports contains a list of the types of regional entities involved within regionalization efforts (see Appendix A).

Delaware Solid Waste Authority

Until the mid 1970s, municipalities throughout the country used dumps for waste disposal. Dumps are unregulated and pose immense environmental problems. To begin regulating waste disposal and to ensure greater environmental protection, the EPA created minimum standards in 1976 for sanitary landfills through the Resource Conservation and Recovery Act. However, closing dumps and constructing sanitary landfills entails a huge economic expense that smaller communities cannot afford. Therefore, to comply with these regulations and to provide waste disposal options for municipalities within Delaware, Delaware formed the Delaware Solid Waste Authority (DSWA), which is overseen and regulated by the Department of Natural Resources and Environmental Control (M. Parkowski, personal communication, November 6, 2014). The DSWA closed all the dumps in the state and built three sanitary landfills and three transfer stations. State law mandates that all counties take their waste to one of these three landfills.

The DSWA is given the power to site and develop landfills, the ability to own property, build, run, and operate facilities by Delaware state law. Additionally, it gives them the power to manage waste in Delaware, which includes the ability to regulate haulers (M. Parkowski, personal communication, November 6, 2014).

The DSWA is not a state agency, but rather is a nonprofit. As such, they do not receive tax money. They receive funding for their operations mainly through landfill tipping fees. They also receive small amounts of funding through small royalties from the sale of recyclables, through the sale of landfill gas to the grid, and through managing a construction and demolition recycling area (M. Parkowski, personal communication, November 6, 2014). The DSWA consists of a volunteer board of directors. The Governor appoints the members to the board and the State Senate approves the selection. The Board of Directors vote and make final decisions on Delaware's solid waste operating plan. The members of the board are appointed (M. Parkowski, personal communication, November 6, 2014).

Regionalization for Delaware means the management of solid waste material on the state level. As such, the DSWA is in charge of creating a statewide solid waste management plan and for ensuring solid waste facilities are operating.

Consolidation of recycling is another aspect that has occurred through from the development of a statewide solid waste management plan. A universal recycling law was put into effect. This means that every hauler has to provide trash and recycling services to all customers within the state. There is only one materials recovery facility (MRF) in the state, located in New Castle. The DSWA contracted with ReCommunity to build the MRF on property owned by the DSWA. So while the property is owned by the DSWA, the facility is not. While another private contractor can build another facility, it is unlikely this will occur as every hauler in

the state has a contract with ReCommunity to bring all recycling to their MRF. In other words, not only would a private company have to wait out the current contracts, they would also have to compete with the pricing structure and would have to build another facility. As it is the only MRF in the state, a consolidation of recyclable materials exists. The MRF is large enough to be able to handle all the recycling in the state, which amounts to around 110,000 tons per year (M. Parkowski, personal communication, November 6, 2014).

In regards to yard waste, Delaware has a landfill ban on yard waste. Even though there is a ban in place, curbside collection is not required by law. While the landfills and transfer stations will accept yard waste for the purposes of collection and diversion, residents have to pay a tipping fee. In many cases, residents can find alternative routes of disposal that are cheaper than the tipping fee. Because of the small amount of yard waste generated, each individual area handles yard waste differently. Therefore, there is not a consolidation of yard waste occurring like for recyclables (M. Parkowski, personal communication, November 6, 2014).

In regards to goals and strategies, the DSWA is required by charter and state law to create a statewide solid waste management plan. A waste reduction plan for the next 10 years is included. As Delaware is a small state with little available space for additional landfills, there is a need for the longevity of landfills. Therefore, within the 10-year plan, zero waste principles are included in an effort to increase diversion. The effectiveness of DSWA can be seen through the tons of material disposed of within the state over the years. For instance, in 2006, 1.2 million tons of trash was landfilled as compared to 2014 where only 690,000 tons have been landfilled (M. Parkowski, personal communication, November 6, 2014).

Massachusetts

Regionalization is established in Massachusetts for multiple reasons, of which are greater economies of scale, more funding opportunities, and additional cost-savings. The state government gives rights to areas to form agreements for the purpose of managing various municipal issues (Massachusetts Association of Regional Planning Agencies, 2012). In regards to solid waste management, there are two types of regionalization for municipalities. In order to create either of these two types of regionalization, a "vote is required by town meeting, town council, or city council" (Massachusetts Association of Regional Planning Agencies, 2012). The two types of regionalization are the regional refuse disposal districts and the joint recycling programs. The laws that relate to these are M.G.L. 40:44A-44L and M.G.L. 40 8H respectfully. For the M.G.L. 40: 44A- 44L, a district committee governs and determines the type of funding (Massachusetts Association of Regional Planning Agencies, 2012). For M.G.L. 40 8H, inter-municipal agreements govern and determine the type of funding (Massachusetts Association of Regional Planning Agencies, 2012).

For inter-municipal agreements, the law states that any two or more municipalities can jointly perform any service that an individual municipality can legally do on its own. The city council and mayor, or board of selectman in the town must approve these agreements (Massachusetts Association of Regional Planning Agencies, 2012).

Hamilton and Wenham, Massachusetts, have an inter-municipal agreement for their organics program. The Board of Selectman from each town signed this agreement. This is a joint services agreement for the collection of organics. One hauler collects organics from both towns (Northeast Recycling Council, Inc., 2009).

Depending on the agreement for regionalization, the legal entities differ. For regional refuse disposal districts, a district committee is in control (Massachusetts Association of Regional Planning Agencies, 2012). The governance structure of the district committees is determined by the agreement. Inter-municipal agreements control joint recycling programs (Massachusetts Association of Regional Planning Agencies, 2012). The governance structure is determined by the agreement. The Department of Environmental Protection has to be consulted and has to work with the communities/municipalities involved in the agreement for regional recycling programs. Without the Department of Environmental Protection's involvement, these programs cannot be pursued (Massachusetts Association of Regional Planning Agencies, 2012).

An example of an inter-municipal agreement in Massachusetts is The Greater New Bedford area. The agreement consists of a committee made of six members, the Town of Dartmouth appoints three and three are appointed by the City of New Bedford. Appointments are for three years. The committee was formed for the purpose of creating a landfill and both cities must ensure that all refuse for both towns ends up in that landfill. Each town is in charge of their respective collection and for the building of additional facilities for refuse that is not suitable for direct disposal into the landfill (Department of Revenue, n.d.; Greater New Bedford Regional Refuse Management District, 2014).

Those involved in the process of the production, collection, processing, and end product include: facilities, haulers, municipalities, residential, institutional, and commercial generators (Massachusetts Association of Regional Planning Agencies, 2012). These are independent entities and are only involved in the solid waste process. According to the specific areas, legal agreements can be entered into in regards to any of the above entities. The specific areas determine how the legal agreements are set up.

Funding sources can come from multiple areas for MSW collection. For instance, they can come from the levying of fees for solid waste collection or disposal, from grants awarded to areas with regional efforts, from issuing bonds and notes, from membership fees for member communities/municipalities, from service fees, and/or from disposal and hauling fees. The membership fees can be based on various measures; for instance, population or usage of the shared service can determine the fee structure. For joint recycling programs, a treasurer is in charge of the recycling fund (Massachusetts Association of Regional Planning Agencies, 2012).

The 2010-2020 Solid Waste Master Plan for Massachusetts provides a roadmap to how Massachusetts will achieve zero waste. Within this document are various examples of how communities have worked together to provide regional services to residents in an effort to gain better services and increased revenues in addition to goals for regionalized services and facilities for communities (Massachusetts Department of Environmental Protection, 2013).

King County, WA

By the Revised Code of Washington (RCW) 70.95.080, King County was required to create a countywide solid waste management plan. This plan states that cities within the county have to work with the county to create waste management plans (70.95 RCW 167). While cities can create their own plans, they can also decide to participate within a single, coordinated regional plan. All the incorporated areas within King County have opted to participate in the county plan except for Seattle and Milton. In order to partake in the countywide plan, inter-local agreements between the individual areas and the county are entered into. These agreements state that the county is the lead-planning agency (Department of Natural Resources and Parks, 2013).

King County is in charge of operating and disposal services in addition to creating the county plan for the 1.28 million people within the county. They do not provide residential curbside collection, but instead each individual municipality is in charge of handling this or of contracting to a private hauler. King County owns all the transfer stations and the one landfill within the county and all waste ends up at these locations, which effectively creates consolidation at these locations. The countywide plan affects all commercial haulers, as they have to provide certain services to residents in the area (Department of Natural Resources and Parks, 2013)

There is a county ban on yard waste from garbage pickup. Cedar Grove Composting handles all the yard waste and turns it into compost. Most areas also allow for food waste. Yard waste can also be dropped off at three transfer stations and a Cedar Falls Drop Box with associated disposal fees are associated with this (Department of Natural Resources and Parks, 2013). The services are either paid for through garbage fees or through an additional service that some residents can sign up. Almost every area within the County has this service curbside. There are only two areas that do not have it curbside, and they make up less than 1% of the total population of the county (Department of Natural Resources and Parks, 2013).

One goal of King County is to keep solid waste fees as low and as stable as possible. Since revenue is generated through disposal and tipping fees, once recycling and waste prevention tactics are realized, they will need new sources of funding (Department of Natural Resources and Parks, 2013). Therefore, they are examining other ways to make money. They are exploring selling landfill gas (Department of Natural Resources and Parks, 2013).

Another goal is to achieve zero waste of resources by 2030. To do this they have the following strategies: waste prevention and reuse, product stewardship, recycling, composting, and beneficial use (Department of Natural Resources and Parks, 2013).

A third goal is to set goals for reuse and recycling and for reducing waste generation. And a final goal is to create waste prevention and recycling programs that increase diversion. The areas they will look at in order to achieve this is infrastructure, education and promotion, incentives, mandates (Department of Natural Resources and Parks, 2013).

In King County, there are two committees that advise the Solid Waste Division. The first is the King County Solid Waste Advisory Committee (SWAC). The members of this committee are appointed by the county legislative authority and are confirmed by the King County Council. Those appointed to this position represent the interests of various stakeholder groups ranging from public and private enterprises, the public, and manufacturers. It consists of 9-20 members. SWAC assists in the "development of programs and policies concerning solid waste handling and disposal and to review and comment upon proposed rules, policies, or ordinances prior to their adoption" (70.95 RCW 167). The second committee is the Metropolitan Solid Waste Management Advisory Committee (MSWMAC). This committee consists of staff and elected officials appointed to this position from the individual cities from where they come. This committee advises the Executive, the Solid Waste Inter-local Forum, and city council "in all matters related to solid waste management and participate in the development of the solid waste management system and waste management plan" (Department of Natural Resources and Parks, 2013).

Pros and Cons of Regionalization

This research found a variety of pros and cons associated with regionalization. Table 1 below lists all the pros and cons. Additional information on the cons is also included.

Pros	Further Information	Cons	Further Information
Reduced costs of collection	- Competition for bids ensure the fairest prices - Increased economies of scale with bulk - Haulers will be able to more easily predict amounts of recycling - Equipment sharing - The costs and capital will be shared - Higher recycling potential	There may be inequalities associated with regionalization. The costs and benefits may not be distributed evenly.	Some areas may experience a higher burden in regards to the costs of increased traffic on roads, increased air pollution, and increased wear and tear on roads
Smaller areas can join forces and money to provide better and more services to their communities.	- Individually, many services might be too expensive, but together, these services become more affordable.	A range of different policies and laws may conflict or be contradictory to each other.	
Convenience for residents and for the hauler	- All waste collection days can be consolidated to one day - One hauler means more efficient collection and reduced burden on roads	Different goals for different areas	While the same needs may exist, the areas may have other issues that are prioritized over the collection of waste.
Higher quality of service			
More service options	- Increased recycling and diversion		
More environmentally conscious	- Less gas and fewer emissions - Can afford better technology		
Better educational opportunities	- Can standardize education across a larger area		
In many cases, combined efforts are more likely to get funding			

Table 1: This information is taken from Gannett Fleming (2008) and U.S. Environmental Protection Agency (1994)

Local Regionalization and Consolidation and Best Practices for Green Organics Collection and Processing

Green organics recycling industry research was conducted to learn from more competitively oriented for-profit operations. The following industry analysis explores local Phoenix Area yard waste recycling programs and best private sector practices of established green organics recyclers.

Refer to the Simplified Phoenix Area Map (see Appendix B) for city location and area comparison (CallTeks, 2014). The table titled Approximate Total Waste Amounts depicts 12 largest cities within the Phoenix Area with their respective waste estimates. The numbers are rough estimates derived from various local and national waste composition statistics, including average per capita waste production and average waste breakdown by type. It is known, for instance, that in the City of Phoenix 47% of residential waste is organic waste (Cascadia Consulting Group, 2014). These estimates could be off by as much as +/- 25% but are useful for city and waste type comparisons.

The map titled Phoenix Area Solid Waste Facilities (see Appendix C) is based on the list of all operational landfills and transfer stations in the area. Facility details are provided in the table with the same title. There appears to be 14 landfills, 17 transfer stations, and 6 shared location landfills and transfer stations. The highlighted rectangular area encompassing all 20 facilities represents 5200 square miles. The distribution of the facilities throughout the region is also important and will be considered in the analysis.

Next figure titled Recycling Programs by City (see Appendix D), compares green waste recycling programs for the seven largest local cities (City of Phoenix, 2014a; City of Phoenix, 2014b; City of Tempe, 2014; City of Glendale, 2014; Town of Gilbert, 2014; City of Chandler, 2014; City of Scottsdale, 2014). As shown in the figure, only Phoenix, Mesa, and Tempe have dedicated green organics or yard waste curbside collection programs. Both Phoenix and Mesa, sell their yard waste to Gro-Well for composting and resale. All cities accept different waste types under the green organics category and even yard waste is defined differently. In addition, all cities currently require different yard waste organization or packaging for curbside collection so each receives different quality feedstock. This means that either collection practices need to be standardized or transfer station processing needs to be customized to achieve a more standardized feedstock. Process and product-level variation complicates potential regionalization and consolidation efforts.

Two companies stood out during the green composting industry analysis: Cedar Grove and Recycled Green Industries. Cedar Grove claims to process 350K tons of organic waste per year in its six Washington state locations (Cedar Grove, 2014). The

company sells bagged and bulk soils and mulch and charge tipping fees for all incoming organic waste. They reserve the right to refuse any shipments that do not meet their purity standards. Recycled Green Industries is a Maryland company with a similar business model but also offering on-site shredding, mulching, and ground clearing services (Recycled Green Industries, 2014). It sells soil mixes to Maryland State Highway Administration. Examples of well-positioned products for each company are depicted in the figures below.

Based on general organic waste recycling industry research and more specific food/yard waste mulching and composting sector analysis, there are a number of potential challenges that the Phoenix area regionalization and consolidation could face. The primary concern is the large size of the area and relatively high population density, which translates to significant logistical difficulties. The distribution of local solid waste facilities is problematic because centralization to the lower Phoenix area is not desirable and other facilities are located on the outskirts of the main area. Furthermore, not only does each local city have different short and long-term recycling goals and strategies, but they are also at very different stages of their implementations. Finally, creating a clear and dependable selling strategy of processed material (in the form or mulch or soil) may be difficult to operationalize and implement. Selling is much harder than creating and selling profitably is yet another level of difficulty.

RECOMMENDATIONS

Based on the above organic recycling industry analysis, the following set of recommendations is proposed for the City of Phoenix and its green organics regionalization and consolidation efforts. Firstly, the distinction between regionalization, consolidation, and centralization must be examined in detail. They are different logistical and operational strategies and have unique risks and benefits, as well as initial implementation requirements. Due to the scattered facility distribution and the lack of large-scale specialized processing facilities in optimal locations, centralization does not appear desirable or even viable. Moreover, the client specified that the initial interest is strictly yard waste and not all organics (combined yard and food waste). Given this input restriction, consolidation becomes somewhat less attractive. Consolidation is most desirable when increase in volume and dependability of inputs is needed. If that were truly the issue here, volume could be easily increased with local city program expansion or inclusion of food waste inputs. It is expected that yard waste recycling is a stepping-stone to all-organic recycling. So instead of expanding limited operation to other regions, a deepening of local operations first may be more strategically sound. Regionalization definitely appears desirable either for early limited-scale consolidation purposes or for later more advanced consolidation attempts. Consolidation without regionalization would be extremely difficult to execute.

We recommend Phoenix start small with a single neighboring city-partner. That city-partner should be selected carefully based on strategic and operational compatibility and not just processing capacity. The City of Tempe would be a good candidate because its yard waste collection program is limited to only 3 seasonal pickups per year. This would be a low risk collaboration pilot. Alternatively, if a larger partner is desired, City of Mesa, with its 40,000 participating households, could be a great initial partner. It is important to select what activities should be regionalized, which should be consolidated, and which should be left completely separate. Obviously composting/mulching will likely be consolidated while curbside collection will be kept at the local level. Regional hauling and transferring may be done at either the local, regional, or central level. We recommend that initially, no new facilities are built and no large capital investments are made. The pilot program would utilize existing infrastructure and capabilities. If projected savings and/or revenue gains were realized, expansion of the pilot would be easy and justified. At least partial self-financing from landfilling savings, tipping fees, and end-product sales would be desirable. Initially, flexible and easy-to-exit contracting should be utilized to protect each partner's long-term interests. Contracts can always be extended or renewed while revising or cancelling them is usually difficult.

CONCLUSION

On the surface, regionalization and consolidation of green organics in the Phoenix Area makes since because landfilling waste equates to about $100/ton of lost revenue, diversion and recycling is universally desirable and increasingly mandated, and dealing with green organics

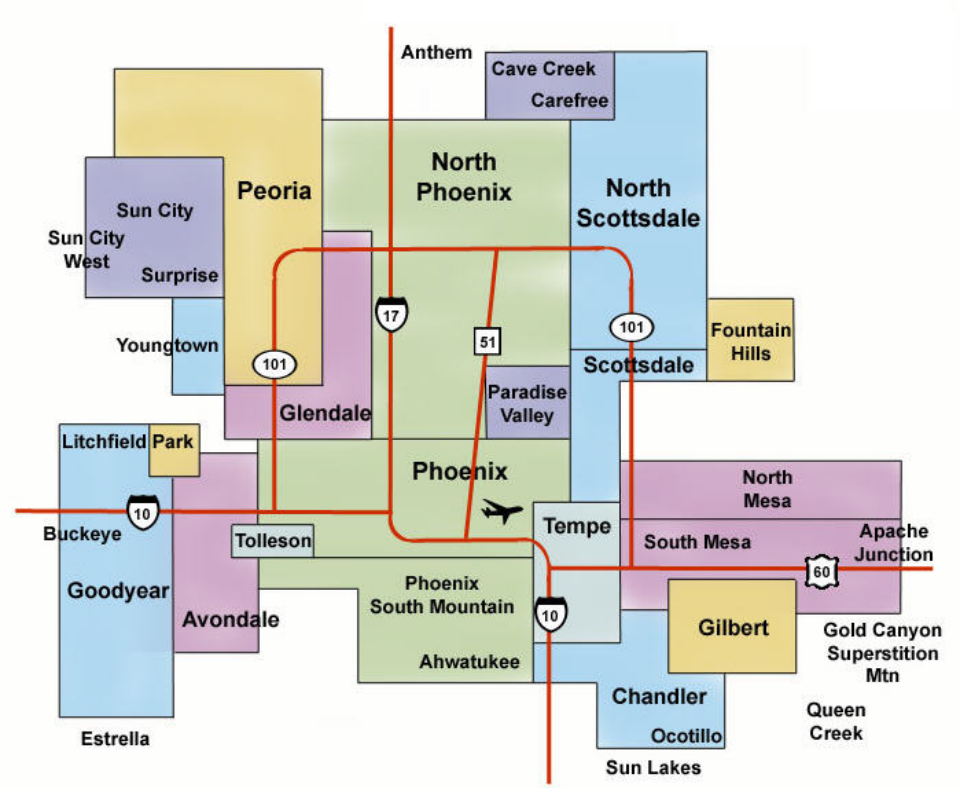
costs less than half of treating regular garbage ($17/ton vs. $38/ton) (Reid, 2014). The only real questions that remain are how, on what scale, and with whom to partner.

APPENDIX

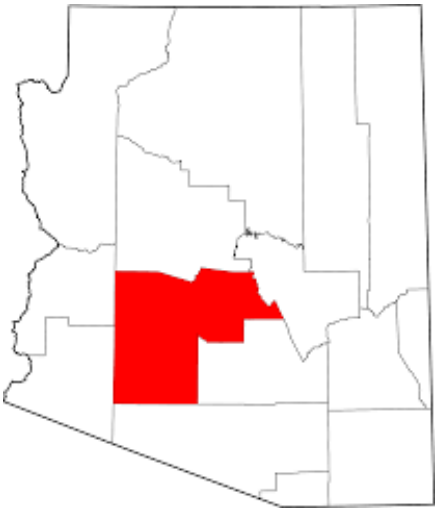
Appendix A: Types of Regional Organization

Types of Regional Organization	Description	Pros	Cons
Intergovernmental Agreement	An agreement between two or more municipalities to work together on a specific task	> flexible and expedient > ability to combine resources on a task without creating a formal organizational structure	> funds may be hard to gather as each party raises own money
Authority, Trust, Special District	An organization that is given jurisdictional power in order to perform a specific function.	> usually has a separate budget from the individual areas > politically/financially indepent so able to make decisions free from local politics	> oversight is needed to ensure checks and balances
Nonprofit Public Corporation	An corporation owned and operated by the governments involved in the regionalization. The board of directors representing each government makes budgetary and operational decisions.	> less independent than authorities, trusts, and special districts, but have more power than municipalities do	> create a nonprofit public corporation may be time-consuming > political considerations may affect decision-making
Regional Council	Public and private decision-makers brought together to help examine, plan, and implement regional strategy.	> access to professional experience and subject-matter expertise	> may have limited fundraising ability > diverse councils may slow down decision-making
Commercial Enterprise	A contracted private company assigned to provide specific waste management services for the areas.	> access to technology innovation and corporate expertise of specialized firms > lowest cost capability through open competitive bidding > risk can be mitigated through contracting due diligence > winning bid selection criteria may target low cost, service quality, or risk aversion.	> less control and flexibility over services provided > lengthy bidding and contracting process

Appendix B: Phoenix Area Map



Map 1. Map of Phoenix Metropolitan Area

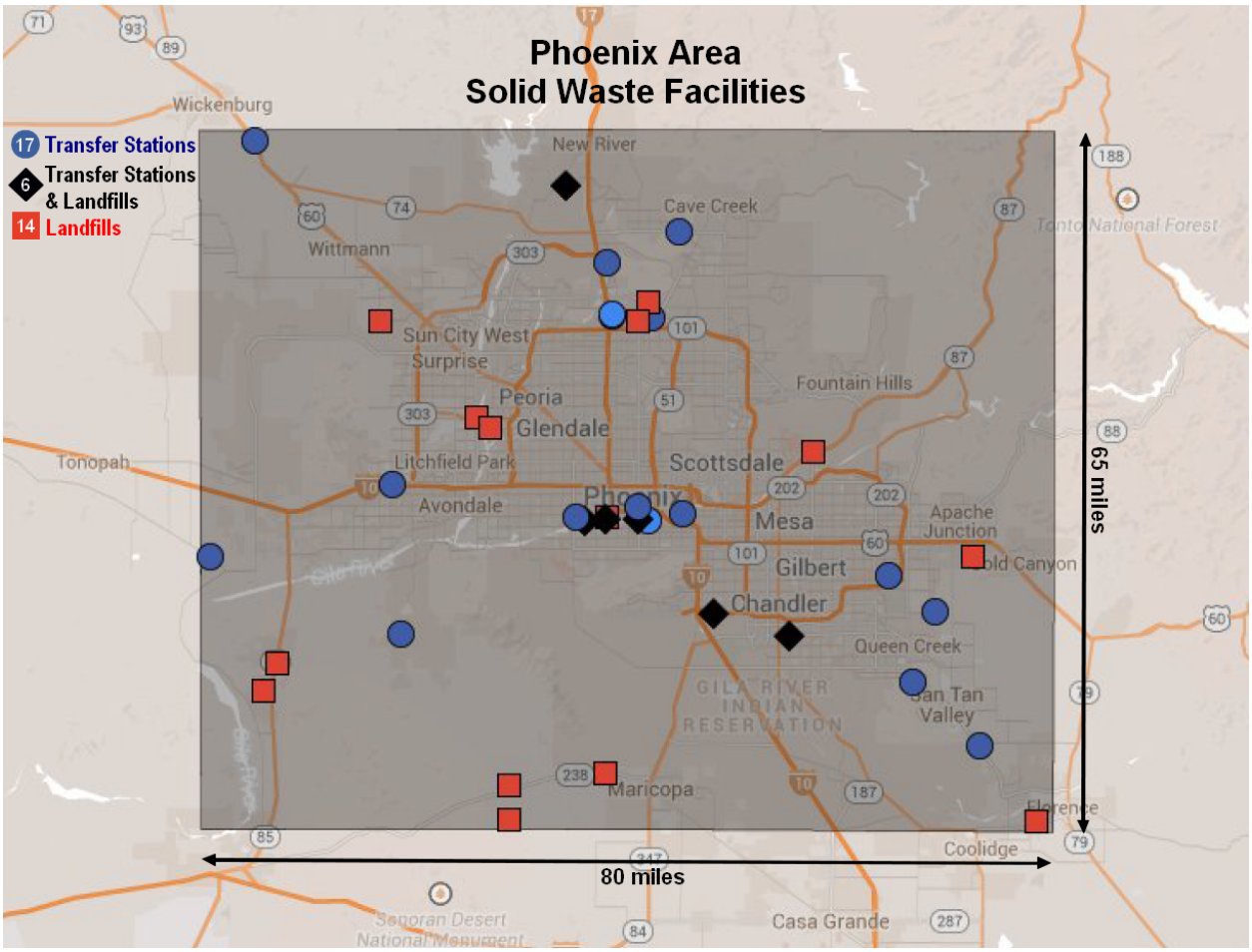


Map 2. Maricopa County

Approximate Total Waste Amounts

	People	Total (tons/yr)	Residential (tons/yr)	Organic (tons/yr)	Yard (tons/yr)
			40%	47%	18%
1 **Phoenix**	1,500,000	977,500	391,000	459,425	175,950
2 **Mesa**	460,000	299,767	119,907	140,890	53,958
3 **Chandler**	250,000	162,917	65,167	76,571	29,325
4 **Glendale**	235,000	153,142	61,257	71,977	27,566
5 **Scottsdale**	230,000	149,883	59,953	70,445	26,979
6 **Gilbert**	230,000	149,883	59,953	70,445	26,979
7 **Tempe**	170,000	110,783	44,313	52,068	19,941
8 **Peoria**	165,000	107,525	43,010	50,537	19,355
9 **Surprise**	125,000	81,458	32,583	38,285	14,663
10 **Avondale**	80,000	52,133	20,853	24,503	9,384
11 **Goodyear**	75,000	48,875	19,550	22,971	8,798
12 **Buckeye**	57,000	37,145	14,858	17,458	6,686
	3.5M	2.3M tons	1M tons	1.1M tons	0.4M tons

Appendix C: Phoenix Area Transfer Stations



Phoenix Area Solid Waste Facilities

Type	Name	Operator	Street	City	Zipcode	County	Phone
TS	7th Street Transfer Station	Republic Services (Allied Waste)	1500 South 7th St	Phoenix	85034	Maricopa	602-322-0330
TS	Cave Creek Transfer Station	Republic Services (Allied Waste)	1855 East Deer Valley Rd	Phoenix	85024	Maricopa	602-237-2078, 623-434-2173
TS	Deer Valley Transfer Station	Waste Management	2120 West Adobe Dr	Phoenix	85027	Maricopa	602-437-3165, 623-869-6799
TS	North Gateway Transfer Station	City of Phoenix - Public Works Dept.	30205 North Black Canyon Hwy	Phoenix	85085	Maricopa	602-262-7251, 602-262-7109
TS	Paradise Transfer Station	Republic Services	4845 West Lower Buckeye Rd	Phoenix	85043	Maricopa	602-505-5475, 602-269-0160
TS	Phoenix North Hauling	Waste Management	2137 West Williams Dr	Phoenix	85027	Maricopa	602-268-2222
TS	Phoenix South Hauling	Waste Management	1580 East Elwood St	Phoenix	85040	Maricopa	602-268-2223
TS	Sky Harbor Transfer Station	Waste Management	2425 South 40th St	Phoenix	85034	Maricopa	602-437-3165, 602-454-2050
TS	Hassayampa Transfer Station	Maricopa County - Waste Disposal & Recycling	32450 West Salome Hwy	Arlington	85322	Maricopa	602-506-4006
TS	Cave Creek Transfer Station	Maricopa County - Waste Disposal & Recycling	3955 East Carefree Hwy	Cave Creek	85331	Maricopa	602-506-4006
TS	Central Arizona Transfer Station	Republic Services (Allied Waste)	5452 East Hunt Hwy	Florence	85132	Maricopa	520-723-9426, 877-762-3520
TS	Rainbow Valley Transfer Station	Maricopa County - Waste Disposal & Recycling	17795 South Rainbow Valley Rd	Goodyear	85338	Maricopa	602-506-4006
TS	White Tank Transfer Station	Waste Management	18605 West McDowell Rd	Goodyear	85338	Maricopa	623-853-1707
TS	Mesa Transfer Station	Republic Services	6711 South Mountain Rd	Mesa	85212	Maricopa	480-987-7865
TS	San Tan Hauling & Transfer Station	Waste Management	4040 South 80th St	Mesa	85212	Maricopa	480-357-7280, 408-308-0915
TS	Morristown Transfer Station	Maricopa County - Waste Disposal & Recycling	40135 North Hwy 60	Morristown	85342	Maricopa	602-506-4006
TS	Central Arizona Transfer Station	Republic Services	5632 East Hunt Hwy	Queen Creek	85142	Maricopa	520-723-9426
TS-L	27th Avenue Facility	City of Phoenix - Public Works Dept.	3060 South 27th Ave	Phoenix	85009	Maricopa	602-262-7251, 602-534-6658
TS-L	7th Avenue Transfer Station & Landfill	Waste Management	3000 South 7th Ave	Phoenix	85040	Maricopa	602-268-2222,602-437-3165
TS-L	Weinberger Landfill & Transfer Station	Glenn Weinberger Topsoil	3425 South 43rd Ave	Phoenix	85009	Maricopa	602-278-9155
TS-L	City of Chandler Landfill & Transfer Station	City of Chandler	955 East Queen Creek Rd	Chandler	85286	Maricopa	480-782-3510
TS-L	Lone Butte Landfill & Transfer Station	Waste Management	1000 South Kyrene Rd	Chandler	85226	Maricopa	520-796-0036
TS-L	New River Transfer Station & Landfill	Maricopa County - Waste Disposal & Recycling	41835 North New River Rd	New River	85087	Maricopa	602-506-4006
L	Deer Valley Landfill	Waste Management	1527 East Alameda Dr	Phoenix	85024	Maricopa	800-963-4776, 602-437-3165
L	Lone Cactus Landfill	Waste Management	21402 North 7th St	Phoenix	85024	Maricopa	623-437-3165
L	Western Organics	Gro-Well Brands, Inc.	2807 South 27th Ave	Phoenix	85009	Maricopa	602-269-5757
L	Southwest Regional Landfill	Buckeye Pollution Control Corp, Allied Waste	24427 South Hwy 85	Buckeye	85326	Maricopa	623-393-0035, 602-237-2078
L	State Route 85 Landfill	City of Phoenix - Public Works Dept.	28361 West Patterson Rd	Buckeye	85326	Maricopa	602-534-8514
L	Ironwood Landfill	Waste Management	12720 East Hwy 287	Florence	85232	Maricopa	520-868-8778
L	City of Glandale MSW Landfill	City of Glendale - MSW	11480 West Glendale Ave	Glendale	85307	Maricopa	623-930-4720
L	El Mirage Inert Landfill	El Mirage Inert Landfill	4545 North El Mirage Rd	Litchfield Park	85340	Maricopa	623-935-2021
L	Butterfield Station Landfill	Waste Management	40404 South 99th Ave	Mobile	85239	Maricopa	602-437-3165
L	Rainbow Valley Landfill	Glenn Weinberger, Inc.	39500 South 99th Ave	Mobile	85139	Maricopa	602-278-9155
L	Salt River Landfill	Pima-Maricopa Indian Community	13602 East Beeline Hwy	Scottsdale	85256	Maricopa	480-941-3427
L	Northwest Regional Landfill	Waste Management	19401 West Deer Valley Rd	Surprise	85387	Maricopa	623-584-6065
L	Apache Junction Landfill	Republic Services	4050 South Tomahawk Rd	Apache Junction	85119	Pinal	480-895-4996
L	Sierra Estrella Landfill	Waste Management	22087 North Ralston Rd	Maricopa	85139	Pinal	602-437-3165

Appendix D: Recycling Programs by City

Recycling Programs by City

	Curbside Bulk w/Green	Curbside Dedicated Green	Green Dropoff Locations	Green Waste Accepted
Phoenix	**YES**	**YES** (tan bin)	2	yard clippings and horse manure
Mesa	**YES**	**YES** (green barrel)	1	grass, leaves, plant trimmings, small tree branches/prunings
Chandler	**YES**	**NO**	1	tree trimmings and yard clippings
Glendale	**NO**	**NO**	0	none
Scottsdale	**YES**	**NO**	1	cut tree limbs, grass, leaves, palm tree skins, bark, wood panels, cacti (in bags & boxes)
Gilbert	**YES**	**NO**	2	bagged grass clippings, weeds, bagged leaves, brush, tree branches/cuttings
Tempe	**YES**	**YES** (3/yr)	2	tree trimmings and brush (tree limbs, branches, trunks and stumps), leaves, pine needles, small hedge clippings, cactus clippings (in bags & boxes)

Bagged Soils

We offer a family of 6 sustainable soil products by the bag, available from any Cedar Grove Landscape Yard or from local retailers across the Puget Sound.

PRODUCTS

Whatever material you need for landscaping, construction or highway projects, Recycled Green Industries delivers. Our experience in landscaping and composting means that you'll get exactly what you order—period. We offer customized mixes of native soil, sand, and aggregate to meet your specifications, including:

No matter what your project requires, our custom soil blends, mulch, and composts are specially developed for:

- Landscaping applications
- Greenroofs & smart walls
- New construction
- Highway projects
- Bioretention/Rain Garden Facilities
- Biofilters & bioswales
- Baseball diamond infield mix

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