

## **WORK SESSION AGENDA**

**CITY COUNCIL WORK SESSION  
TUESDAY  
AUGUST 29, 2017**

**COUNCIL CHAMBERS  
211 WEST ASPEN AVENUE  
6:00 P.M.**

**1. Call to Order**

**NOTICE OF OPTION TO RECESS INTO EXECUTIVE SESSION**

*Pursuant to A.R.S. §38-431.02, notice is hereby given to the members of the City Council and to the general public that, at this work session, the City Council may vote to go into executive session, which will not be open to the public, for legal advice and discussion with the City's attorneys for legal advice on any item listed on the following agenda, pursuant to A.R.S. §38-431.03(A)(3).*

**2. Pledge of Allegiance and Mission Statement**

**MISSION STATEMENT**

*The mission of the City of Flagstaff is to protect and enhance the quality of life for all.*

**3. Roll Call**

*NOTE: One or more Councilmembers may be in attendance telephonically or by other technological means.*

MAYOR EVANS  
VICE MAYOR WHELAN  
COUNCILMEMBER BAROTZ  
COUNCILMEMBER MCCARTHY

COUNCILMEMBER ODEGAARD  
COUNCILMEMBER OVERTON  
COUNCILMEMBER PUTZOVA

**4. Preliminary Review of Draft Agenda for the September 5, 2017, City Council Meeting.\***

*\* Public comment on draft agenda items may be taken under "Review of Draft Agenda Items" later in the meeting, at the discretion of the Mayor. Citizens wishing to speak on agenda items not specifically called out by the City Council for discussion under the second Review section may submit a speaker card for their items of interest to the recording clerk.*

**5. Public Participation**

*Public Participation enables the public to address the council about items that are not on the prepared agenda. Public Participation appears on the agenda twice, at the beginning and at the end of the work session. You may speak at one or the other, but not both. Anyone wishing to comment at the meeting is asked to fill out a speaker card and submit it to the recording clerk. When the item comes up on the agenda, your name will be called. You may address the Council up to three times throughout the meeting, including comments made during Public Participation. Please limit your remarks to three minutes per item to allow everyone to have an opportunity to speak. At the discretion of the Chair, ten or more persons present at the meeting*

*and wishing to speak may appoint a representative who may have no more than fifteen minutes to speak.*

6. **Brief updates from area professionals regarding the Flagstaff business community.**  
These updates will happen quarterly and this is the first quarterly update for the year.

7. **Consideration and Discussion of the City's Rethink Waste Plan (Resolution 2017-30)**

8. **Review of Draft Agenda Items for the September 5, 2017, City Council Meeting.\***

*\* Public comment on draft agenda items will be taken at this time, at the discretion of the Mayor.*

9. **Public Participation**

10. **Informational Items To/From Mayor, Council, and City Manager; future agenda item requests.**

11. **Adjournment**

CERTIFICATE OF POSTING OF NOTICE

The undersigned hereby certifies that a copy of the foregoing notice was duly posted at Flagstaff City Hall on \_\_\_\_\_, at \_\_\_\_\_ a.m./p.m. in accordance with the statement filed by the City Council with the City Clerk.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2017.

\_\_\_\_\_  
Elizabeth A. Burke, MMC, City Clerk

## CITY OF FLAGSTAFF

### STAFF SUMMARY REPORT

**To:** The Honorable Mayor and Council  
**From:** David McIntire, Community Investment Director  
**Date:** 08/14/2017  
**Meeting Date:** 08/29/2017



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#### TITLE:

**Brief updates from area professionals regarding the Flagstaff business community.** These updates will happen quarterly and this is the first quarterly update for the year.

#### DESIRED OUTCOME:

Council will receive information regarding the business activities that have been happening in our community.

#### EXECUTIVE SUMMARY:

The City of Flagstaff Economic Development Program works with several business providers, both in Flagstaff and regionally. As the economy grows and shifts over the next year there will be a series of quarterly updates in which these partners, and various business leaders or groups, will have the opportunity to provide brief updates about their efforts, successes, observations, and challenges in the business sector. The intention is to provide Council, and the public, an opportunity to hear more about what is happening in the community on a regular basis.

#### INFORMATION:

The Flagstaff economy is complex and always shifting. It, like all economies in our system, adapts to new influences ranging from the international stage to individual consumer trends and preferences. As markets, behaviors, rules, regulations, technology and infrastructure change; Flagstaff's economy adjusts as well. This has been a year where change has been apparent in a number of ways. Growth is visible throughout the community in new construction of healthcare facilities, housing, and with new businesses opening, but a number of business closures also remind us that cycles are constantly in flux.

To help inform the Council, staff, and the public there will be quarterly work session updates from various community partners. In this first update, mainly economic development organizations and institutions will present, but the future updates on November 28, 2017; February 27, 2018; and May 22, 2018, will allow for more diverse representation throughout our business community. Out of respect for the number of organizations working on these issues, and the Council's working calendar, each presenter has been asked to keep their presentations three to five minutes. Obviously this time will only allow them to discuss specific items, but it is hoped that through these brief presentations, and any additional dialogue, that a picture of what is happening in our business community will continue to enhance everyone's knowledge and awareness.

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#### Attachments:

## **CITY OF FLAGSTAFF**

### **STAFF SUMMARY REPORT**

**To:** The Honorable Mayor and Council  
**From:** McKenzie Jones, Sustainability Specialist  
**Date:** 08/18/2017  
**Meeting Date:** 08/29/2017



#### **TITLE:**

**Consideration and Discussion of the City's Rethink Waste Plan (Resolution 2017-30)**

#### **DESIRED OUTCOME:**

Obtain feedback on Resolution No. 2017-30

#### **EXECUTIVE SUMMARY:**

In an effort to better prepare for changes in the waste and recycling landscape in the City of Flagstaff, as well as most effectively reduce the impact of the community's waste and material consumption, City staff have created the Rethink Waste Plan ("Plan") to guide future efforts. The Plan establishes a framework for institutionalizing a new approach to managing the City's waste and materials, known as materials management. Additionally, the Plan establishes a vision and goals to evaluate future success, as well as a near term plan for setting a foundation to be built upon in future planning. Resolution 2017-30 adopts the Rethink Waste Plan and establishes an effective date. The goal of the presentation is to obtain feedback in hopes of bringing the Resolution back to City Council in October for approval.

#### **INFORMATION:**

As part of the FY 2017 budget, Council approved a Request for Service Level increase for recycling outreach in an effort to increase the recycling rate, currently at 13%. Many Flagstaff residents, businesses, and institutions lack the knowledge and access to services needed to reduce the impact of their waste and material consumption. The Plan outlines the barriers that prevent these actions and guides City staff over the next three (3) years in implementing the most cost-effective initiatives that will empower the community to be resourceful, reduce waste, and make recycling more efficient. Additionally, the Plan provides the public with a clear long-term vision and goals to understand how the City is working to reduce the impact of the community's material consumption and waste.

#### **COUNCIL GOALS:**

**CLIMATE CHANGE:** Take meaningful climate change action. Actively manage and protect all environmental and natural resources.

**ENVIRONMENTAL AND NATURAL RESOURCES:** Actively manage and protect all environmental and natural resources.

- Further develop sustainability and waste removal policies and programs.

**ECONOMIC DEVELOPMENT:** Grow and strengthen a more equitable and resilient economy.

#### **REGIONAL PLAN:**

Policy E&C.1.4. Maintain air quality through pursuit of non-polluting industry and commercial enterprises.

Policy E&C.2.1. Encourage the reduction of all energy consumption, especially fossil-fuel generated energy, in public, commercial, industrial, and residential sectors.

Policy E.1.3. Empower all community members to make smarter energy choices through education and incentives.

Goals CD.1. Improve the City and County financial systems to provide for needed infrastructure development and rehabilitation, including maintenance and enhancement of existing infrastructure.

Goal PF.2. Provide sustainable and equitable public facilities, services, and infrastructure systems in an efficient and effective manner to serve all population areas and demographics.

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**Attachments:**     [Rethink Waste Presentation](#)  
                              [Resolution 2017-30](#)  
                              [Rethink Waste Plan](#)



# Sustainability Specialist





# TEAM FLAGSTAFF



## Why do we need the Rethink Waste Plan?

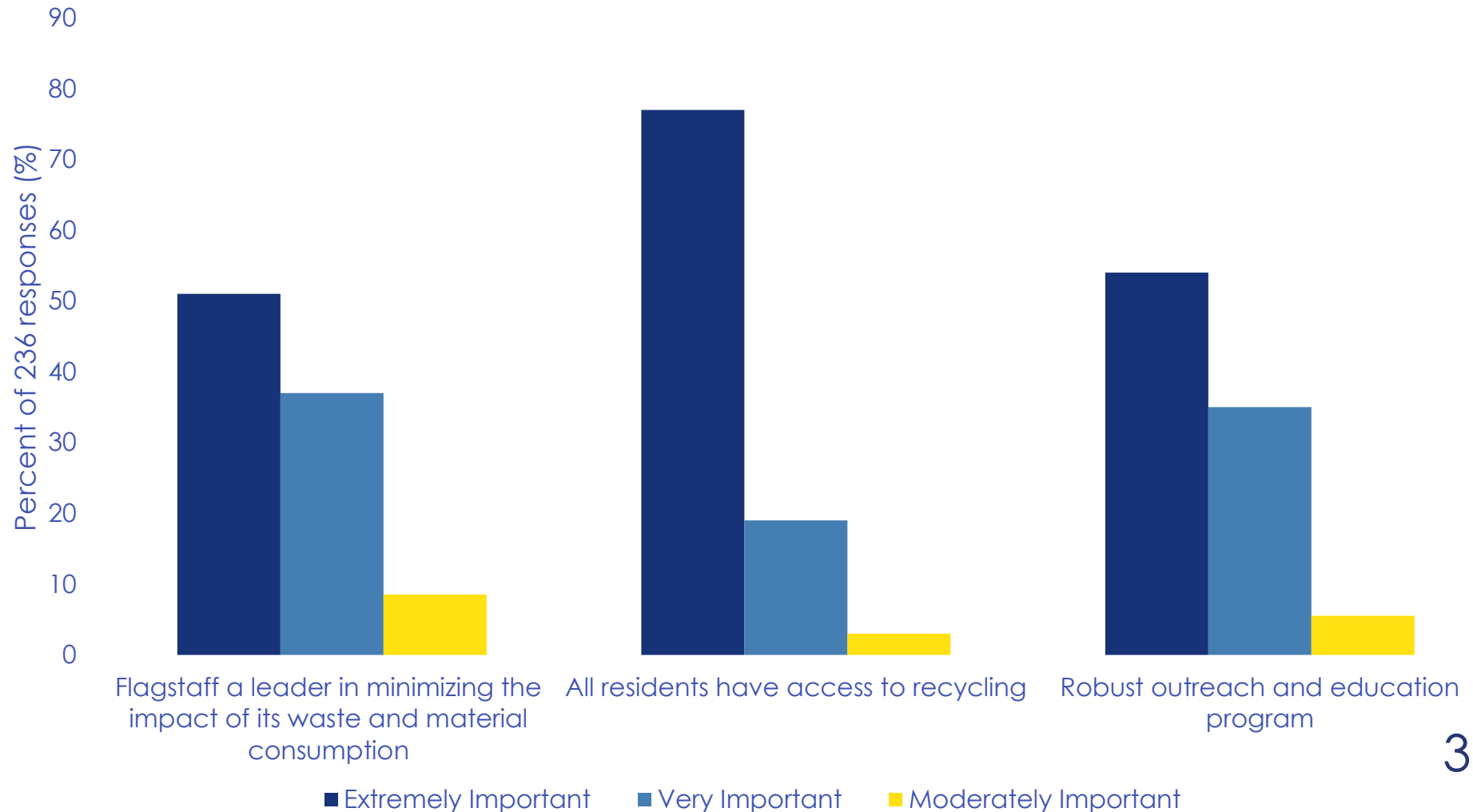
- City Council has ambitious goals related to climate change and natural resource conservation
- The plan will guide future programming and provide Solid Waste with the ability to provide more accurate cost-benefit scenarios
- The community cares about making Flagstaff a leader in recycling and waste prevention



# TEAM FLAGSTAFF



## 2017 Community Survey: Support for Recycling and Waste Prevention



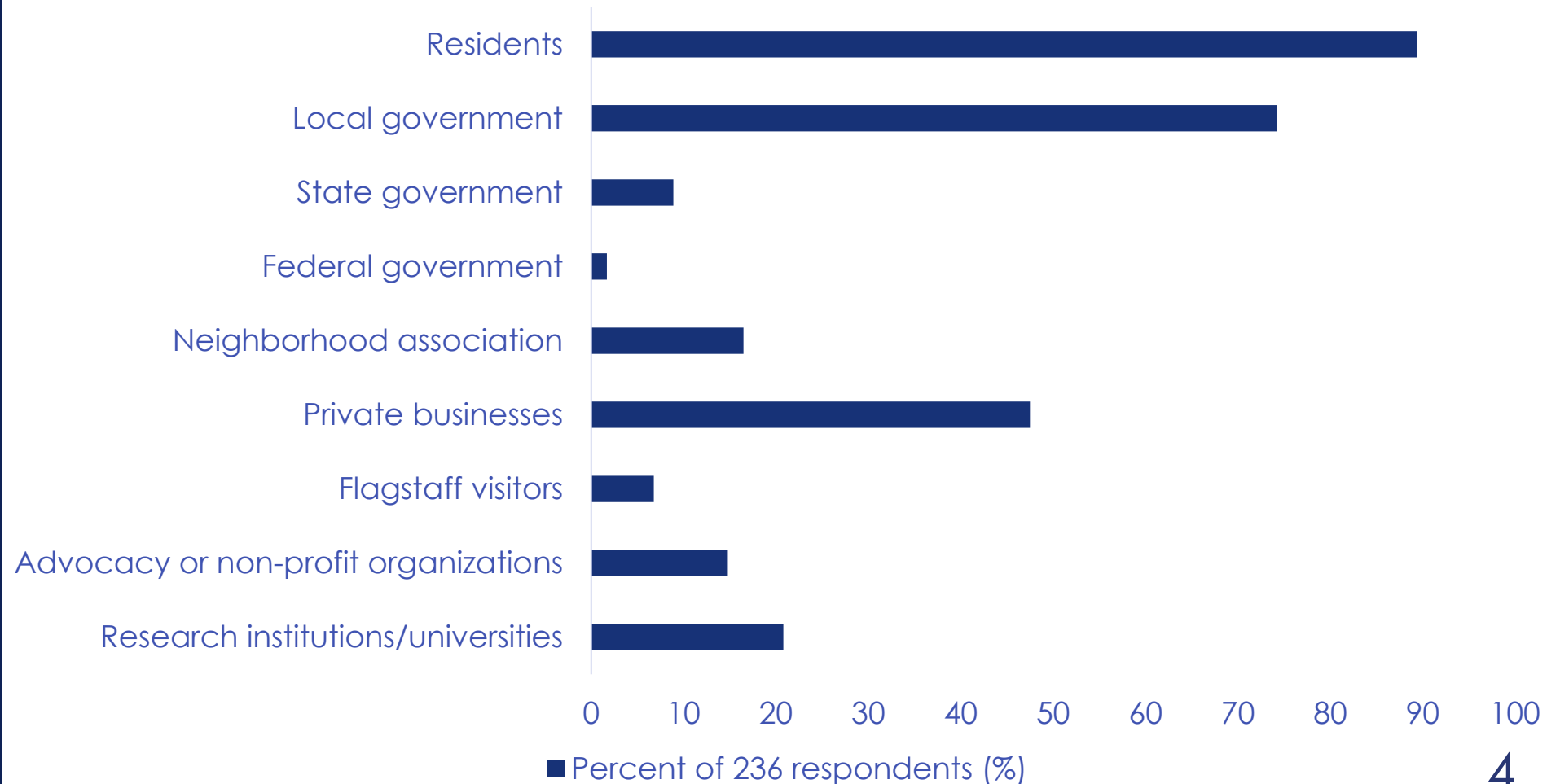




# TEAM FLAGSTAFF



## 2017 Community Survey: Who can best help Flagstaff become a leader in waste prevention and recycling?





# TEAM FLAGSTAFF

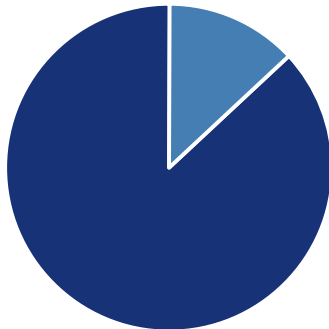


## Preliminary Goals

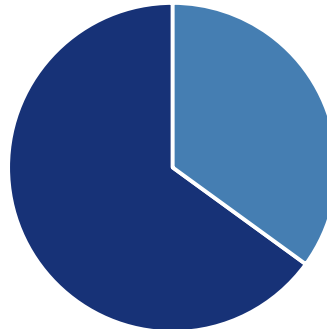
- Waste Prevention:
  - Reduce overall waste generation
- Waste Diversion:
  - Achieve Zero Waste by 2050  
(Divert 90% of waste from landfill)
- Climate Change:
  - Reduce emissions associated with Flagstaff's material consumption



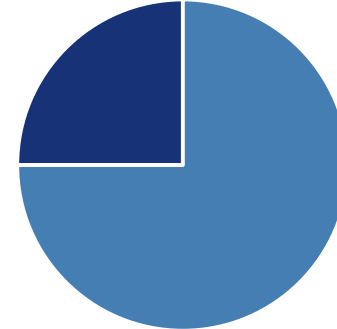
- # Flagstaff



National



## Potential



- Landfill
- Recycle



- An institutional shift in how the community thinks about waste
- A phased plan of action
- Preliminary goals
- Existing barriers and needs
- Recommendations
- Near-term initiatives (next 3 years)



## Phased Plan of Action

### Phase 1 (*Years 1 – 3*)

- Set foundation
- Fill data gaps
- Establish baseline metrics

### Phase 2 (*Years 4 – 5*)

- Develop a strategic plan for achieving vision
- Update goals

### Phase 3 (*Years 6+*)

- Implement policies, programs, infrastructure recommended in Strategic Plan

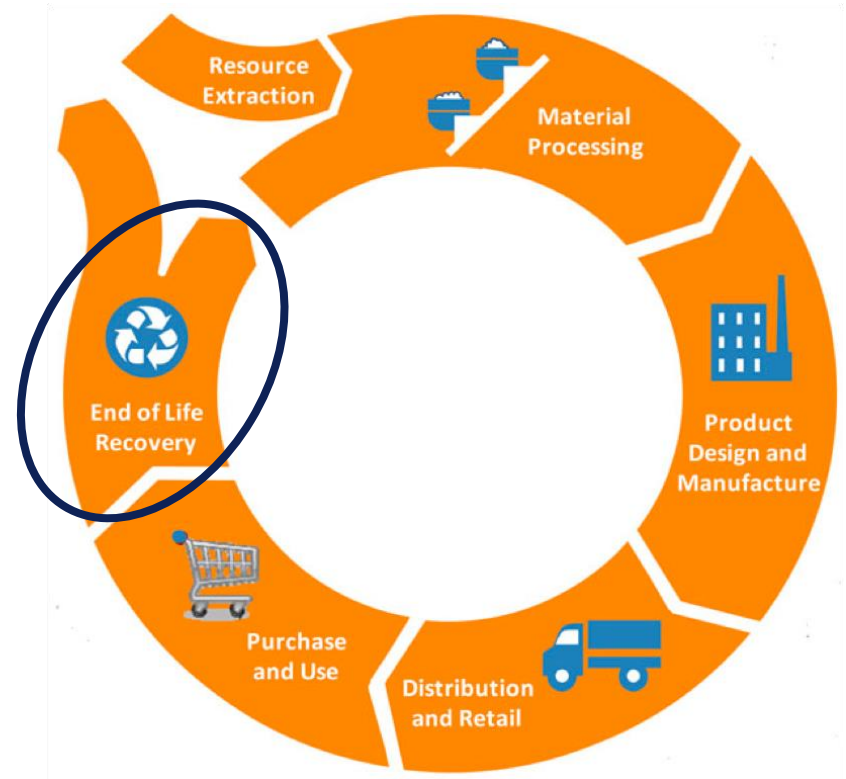


# TEAM FLAGSTAFF



## Barrier 1: Poor framework

- The way the City is thinking about waste is limiting.
- The majority of impacts occur prior to disposal and recycling of materials.







# TEAM FLAGSTAFF



## Solution

- Adopt Materials Management Framework
- Results in highest reduction in Flagstaff's environmental footprint





## Barrier 2: Gaps in data

- Data from private haulers
- Recycling collection data incomplete
- Data on greenhouse gas emissions associated with consumption





## Solutions

- Explore permitting system for private haulers
- Conduct waste characterization study
- Coordinate with MRF to overhaul data capture
- Conduct consumption-based greenhouse gas emissions inventory



# TEAM FLAGSTAFF



## Barrier 3: Poor access

- Commercial and multifamily sectors have inadequate access to recycling services
- Lack of financial incentives for recycling (residential and commercial)



- Implement policies that increase access
- Develop a commercial and multifamily recycling support program





- Residents and the municipality lack the incentive to reduce the amount of waste they produce





- Implement volumetric pricing (Pay-as-you-throw)
- Explore a flow control policy
- Plan for end of Norton Environmental contract





# TEAM FLAGSTAFF



Questions or comments?

Thank you!

McKenzie Jones  
City of Flagstaff  
[mjones@flagstaffaz.gov](mailto:mjones@flagstaffaz.gov)  
928-213-2153



**RESOLUTION NO. 2017-30**

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF FLAGSTAFF,  
ARIZONA ADOPTING THE RETHINK WASTE PLAN AND ESTABLISHING AN  
EFFECTIVE DATE.**

**RECITALS:**

WHEREAS, over 110,000 tons of waste was generated in the City of Flagstaff (City) in 2015 and approximately 86% was sent to the Cinder Lake Landfill ("Landfill") for disposal;

WHEREAS, the current projected Landfill closure date is 2054;

WHEREAS, the placement of materials in the Landfill wastes natural resources and transfers liabilities to future generations;

WHEREAS, the guiding principles of sustainable materials management are: conserving natural resources through waste prevention and recycling, promoting products and materials that are durable and recyclable, and discouraging products and materials that cannot be recycled;

WHEREAS, achieving zero waste conditions in the City would mean diverting 90% of material produced in Flagstaff from being disposed of in the Landfill.

**NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS  
FOLLOWS:**

SECTION 1. That the City will adopt the Rethink Waste Plan (Plan) as the guiding document to determine which actions are taken over the next three (3) years to improve recycling rates, prevent waste, and set a foundation for future success.

SECTION 2. That the City hereby encourages the adoption of the sustainable materials management approach as a decision-making framework in order to reduce the environmental impacts across the life cycle of the materials consumed in Flagstaff.

SECTION 3. That the goals and performance metrics established within the Plan for waste diversion, waste generation, climate change and participation will be used to determine the success of City efforts and revisited during a future strategic planning process

SECTION 4. That City staff will undergo a strategic planning process in 2021-2022 to determine which actions will be taken over the long term to achieve the vision and goals outlined in the Plan.

This resolution shall become effective thirty (30) days following adoption by the City Council.

PASSED AND ADOPTED by the City Council and approved by the Mayor of the City of Flagstaff this \_\_\_\_\_ day of \_\_\_\_\_, 2017.

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MAYOR

ATTEST:

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CITY CLERK

APPROVED AS TO FORM:

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CITY ATTORNEY



# Rethink Waste: A Framework for Transitioning to Sustainable Materials Management

## Executive Summary

In an effort to better prepare for changes in the waste and recycling landscape in the City of Flagstaff, as well as most effectively reduce the impact of the community's waste and material consumption, City staff have created the Rethink Waste Plan or "Plan" to guide future efforts.

## Materials Management Vision

In the past, much of the City's focus has been on expanding access to and participation in recycling services. While these efforts will continue, a sole focus on material recovery will not allow the municipal organization and community to most effectively reduce their impact. Rather, through the lens of materials management, the Rethink Waste Plan has an increased focus on eliminating waste at its source and reducing the impact of materials across their life cycle. Contained within this Plan is a vision and goals to guide efforts over the long term towards a future in which the community's environmental impact is minimized.

## Framework for Action

To achieve the vision contained in the Plan, the City will utilize a phased approach. In the near term, staff will focus on increasing participation in existing services, building foundational program elements, and investigating barriers to the materials management vision. Once this foundation has been established, the City will undergo a strategic planning process that will outline the long-term roadmap during Phase Two. Phase Three will focus on implementing the roadmap established during the strategic planning process.

## Barriers and Needs

Contained within the Plan is an assessment of existing barriers to achieving this vision. The barriers to reaching each goal for waste diversion, prevention, and climate change are explored. Whether it is gaps in data collection or a lack of enabling legislation, there are multiple barriers that must be addressed to achieve the goals and vision outlined in the Plan.

## Recommendations

Based off the existing barriers, the plan discusses what is needed during the first phase to institutionalize this materials management framework and set a foundation for future success.

## Phase One Action Plan

The final element to the Rethink Waste Plan is an outline of the planned efforts over the next three years.

## Transition to Sustainable Materials Management Framework

Central to the Rethink Waste Plan is a shift in the City's approach to managing the waste and material consumption in Flagstaff. This shift is necessary because of the limitations of the current framework, known as, solid waste management.

### Limitations of solid waste management framework

This solid waste management framework has been utilized by the City, as well other local and state governments, for decades to manage the discards of the community. The framework promotes recycling and emphasizes landfilling waste in an environmentally sensitive manner. This can be observed in Flagstaff with the Cinder Lake Landfill and a recycling program that residents have participated in for over two decades. While this framework and programming has been successful in reducing the impacts of waste that occur after its use, it is inherently limited.

Despite the successes of the solid waste management framework, concerns over global resource use and Flagstaff's growing environmental footprint remain. Considering the life cycle diagram below, the solid waste management framework has only focused on the "end-of life" phase of the life-cycle of materials. While it can still allow for effective landfilling and recycling, it does not consider the impacts of materials that occur prior to their use.



For most materials, the upstream impacts from extraction, manufacturing, distribution, and use can be 10 to 100 times more impactful than the end-of-life phase. A more effective framework for decision making to address the full life cycle of impacts can be found in what is called Materials Management.

## What is a Materials Management Framework?

Materials management is a conceptual framework for systematically addressing the movement of materials through the economy from extraction to end of life. This concept is essential to reducing our environmental footprint and resource consumption. The U.S. Environmental Protection Agency (EPA) developed the following definition:

*Materials management is an approach to serving human needs by using/reusing resources most productively and sustainably throughout their life cycles, generally minimizing the amount of materials involved and all the associated impacts.*

Adopting a materials management approach will continue the City's effort to optimize recycling operations, but also expand its focus to prioritize waste prevention. Waste prevention reduces the generation of waste at its source. Examples of programming include a marketing campaign to encourage residents to bring their reusable bag to the grocery store or instituting sustainable purchasing policies that require larger suppliers to "take back" packaging and other obsolete products.

## Vision for Flagstaff in 2050

The City envisions a Flagstaff where local government, residents, businesses and visitors collectively take action to reduce the impact of their material consumption. By 2050, Flagstaff will reduce its overall waste generation and divert 90% of materials from the landfill.

**Residents live and use material sustainably.** All Flagstaff residents enjoy high-quality lives that do not require high levels of material consumption. They see themselves first as members of a community, as opposed to consumers. Social norms, infrastructure and policy make low-impact consumption easy and rewarding. Collaboration, sharing, repair and reuse are all normal, and sustainable consumption is a social norm that is easy to live by.

**Product reuse and repair options are abundant and desirable.** Flagstaff already has a growing reuse industry with a myriad of thrift stores and, with the proper support, this industry can continue to grow. Flagstaff residents seek out opportunities to purchase reused and repair when possible.

**Residents understand that materials have a useful life after they are discarded.** It is a social norm for residents to reuse, repair, and recycle that which cannot be prevented.

**Material diversion is easy for residents and visitors when recreating in public spaces.** If residents and visitors are hiking, biking, and sightseeing in Flagstaff's many public spaces, recycling and composting is just as easy as landfilling the materials they carry with them.

**Access to services and facilities that divert non-preventable waste streams.** Through City-owned operations or public-private partnerships, residents and businesses have access to all the necessary facilities to divert existing waste streams from the landfill, as well as collection operations to deliver them in convenient manner. Few materials are landfilled or incinerated.

**New construction is done in a manner that actively reduces all possible waste and diverts that which cannot be eliminated.** Contractors think proactively about the waste that is produced as a result of their operations, choose building materials that minimize upstream impacts, and are incentivized to divert remaining byproducts through the region's many diversion facilities and services.

Development is conducted with future waste diversion in mind. New buildings and properties are constructed in a manner that leaves adequate space for diversion options, such as recycling and composting, to be added to maximize their convenience and use by tenants.

Health and environmental risks from disposed wastes are minimized. While reduced, there is likely to still be a need for landfilling waste in future. It will be important to manage that waste properly to reduce its potential impact.

City maintains a collaborative relationship with state and regional partners to reduce upstream impacts. To be successful in reducing material consumption impacts, the City will need policy support from the state and federal level.

### Benefits of adopting a Materials Management Framework

Institutionalizing this framework and acting upon this vision has the opportunity to bring significant benefits to the community including:

#### Energy and Greenhouse Gas Impacts

According to the EPA, roughly 42% of U.S. emissions are associated with the provision of materials and goods. Taking action to reduce the impact of Flagstaff's material consumption can play a key role in meeting the City's climate change goals. By boosting recycling rates, Flagstaff can reduce emissions by lowering the demand for virgin materials.

#### Resource Conservation

By increasing diversion and preventing the generation of waste, Flagstaff can extend the life of the Cinder Lake Landfill, which is currently projected to close in 2054. For every ton of solid waste produced locally, there are 71 tons of waste produced upstream from mining, manufacturing and the distribution of products.

#### Job Growth and Economic Development

According to the EPA, every 1,000 tons of recycled material can be attributed to 1.57 jobs, \$76,030 in wages, and \$14,101 in tax revenue. In other communities, such as Austin, local governments are supporting new businesses that aim to divert challenging waste streams through innovation contests.

### Framework for action

The Rethink Waste Plan will guide the City as it shifts to a materials management framework, while keeping in sight a long term vision to reach consumption and waste diversion goals. Prior to recommending major policy changes and infrastructure improvements, the City will need to address existing barriers and ensure that foundational elements are in place. The timeline below benchmarks the City's transition. A specific plan for that first phase is included in this document.

#### Timeline for achieving vision

In order to achieve the vision outlined in the plan, efforts will be broken down into the three phases described below.

## Phase One – Years 1 – 3

Phase One will be focused on setting a foundation for future efforts to build upon and ensure that the basic elements of any successful recycling and waste prevention program are established. A detailed plan for this first phase can be found in Appendix I.

### *Build foundational elements*

Before undertaking significant investments in new infrastructure and services the City must develop a successful recycling and waste prevention program. This first phase will be focused on establishing these basic programs and services that can then be expanded upon to move us toward long-term goals. Examples of this include:

- Recycling and waste prevention education in K-12 classrooms
- Door-to-door community outreach
- Implementation of recycling in public spaces, such as downtown and public parks
- Consistent coloring of recycling and trash infrastructure consistent within city limits and based on international standards
- Basic changes to municipal code to ensure new construction is done with recycling in mind

### *Fill gaps in data and knowledge*

One of the current barriers is a lack of data and knowledge of Flagstaff's waste landscape. The City does not currently have stand-alone data on diversion rates for its commercial and multifamily customers, nor does it have data on waste and recyclable material that is collected by private haulers. Additionally, a consumption-based greenhouse gas inventory is needed, in order to create the greatest reductions in Flagstaff's environmental footprint.

### *Engage residents on materials management vision*

While this new materials management framework will allow the City to best achieve its goals, it is a framework that is unfamiliar to most. Throughout this first phase, we aim to educate community members on what this new vision will look like, as well as get a pulse on how the community feels we can best achieve this vision.

Significant changes will need to be made in order to reach the goals outlined in this document. City staff will engage the public to determine which types of actions and efforts residents would like to see in order to achieve the vision.

### *Establish baseline for key metrics*

In order to evaluate future success, it will be important to have multiple metrics to determine whether or not Flagstaff is moving towards this materials management vision. Some of the necessary metrics, such as per capita waste generation, are not being tracked at the moment. Others may not be accurate because of the lack of data mentioned earlier. A focus of the phase one, will be to establish accurate baselines for key metrics.

## Phase Two – Years 4 – 5

After setting the stage in Phase One, the City will be ready to begin Phase Two, which will focus on creating a long-term strategic plan for achieving the goals and vision outlined in this Plan.

### *Develop and initiate plan for achieving materials management vision*

While this Plan recommends actions that will set a foundation for future success, it does not outline exact policy and programmatic prescriptions that will allow us to achieve the goals and vision of this Plan. The focus of Phase Two will be establishing a strategic plan with these specific policy and program recommendations that can be implemented over the long-term.

### *Reevaluate and update phase one goals*

The Rethink Waste Plan establishes goals to guide Flagstaff in the future, but these goals should be reevaluated and updated after phase one, based on progress and more in-depth research of Flagstaff's waste system.

## Phase Three – Years 6 and beyond

### *Implement the plan established in phase two.*

This final phase will be focused on implementing the strategic plan established in Phase Two.

## Preliminary Goals and Metrics

### Waste Prevention

In the past, much of the City's focus has been expanding access to and participation in recycling services. While these efforts will continue, a sole focus on material recovery will not allow the municipal organization and community to most effectively reduce their impact. Rather, through the lens of materials management, the Rethink Waste Plan has an increased focus on eliminating waste at its source and reducing the impact of materials across their life cycle.

According to EPA data, the average American generated 4.4 pounds of total waste per day in 2013, and recycled or composted 1.51 pounds of those materials. The City will begin to measure this metric annually.

- **Goal:** Measure per capita total waste generation (trash, recycling and compost) and decrease over time.
- **Goal:** Stop growth overall waste generation over the next three years.
- **Performance Metric:** Pounds of total waste per person per day and total waste generation.

### Waste Diversion

The percentage of waste diversion is calculated by taking the weight of total materials recycled and composted and dividing this by the weight of the total discarded materials (total recycled, composted, and landfilled). The Rethink Waste Plan sets a goal of 90% waste diversion, the internationally accepted diversion rate for a zero waste community. The target date to achieve this level of waste diversion is 2050. Each sector of the Flagstaff community, including single-family residential, multifamily residential, and commercial should each achieve 90% waste diversion.

- **Goal:** 90% diversion by 2050
- **Performance Metric:** Waste diversion per sector (reported annually)



## Climate Change

From the emissions associated with transporting Flagstaff's waste to the sorting of recyclable material at the Material Recovery Facility (MRF) and its disposal at the Cinder Lake Landfill, community greenhouse gas emission reports show that a major portion of emissions are tied to Flagstaff's waste. In the 2013 and 2014 Community Greenhouse Gas Emissions Report, waste made up 8% of the community's total emissions. As the growing field of materials management, indicates, the majority of a material's impact comes before it is recycled or disposed of and the same is true of its emissions.

- **Goal:** Reduce greenhouse gas emissions from waste disposal.
- **Goal:** Measure greenhouse gas emissions associated with Flagstaff's material consumption.
- **Performance Metrics:** Greenhouse gas emissions from waste disposal (reported annually). Greenhouse gas emissions tied to the materials used by the community.

## Participation

The City tracks the number of customers utilizing the Hazardous Products Center (HPC) and other zero waste opportunities such as fix-it clinics. We plan to identify and increase the number and diversity of customers accessing those City-sponsored facilities. The City will continue to collaborate with partners to develop improved measures across all programs and facilities.

- **Goal:** Maximize the number and diversity of individual participants in zero waste services and programs.
- **Performance Metric:** Number and diversity of participants using zero waste programs, services and facilities (reported annually).

## Policy, Strategy, and Process

Over the long-term, there are multiple types of strategies utilized to foster behavior change, increase diversion, prevent waste, grow the capacity of local waste and recycling systems, and move Flagstaff closer to its materials management vision.

### Available Strategies

*Behavior change and education* – Effective education and social marketing programs can support the development of new habits and personal motivation to decrease the impact of material consumption.

*Infrastructure improvements* – New infrastructure will be necessary to make recycling and preventing waste more convenient, as well as to handle increases in demand due to changes in resident behavior and the global material market.

*Lead by example* – Guided by the Municipal Sustainability Plan, the City aims to be a model for the broader community by fostering behavior change and promoting waste prevention and recycling within the municipal organization.

*Support regional and state policy* – A coordinated approach within all levels of government is necessary, recognizing that authority for certain policies or actions may reside with regional or state agencies.

*Implement local policy* – City legislation may be necessary to establish new policy.

## Barriers and Needs

There are a number of barriers that interfere with the City's transition to a materials management framework. They include:

### Waste Prevention

Flagstaff's goal is to stop growth in the waste stream, but in order to do so we need to begin collecting data related to overall waste generation. Flagstaff will begin using the performance metric of pounds of total waste per person per day (reported annually) to evaluate waste prevention programming.

#### Gaps in data collection

Additionally, because a lack of reporting requirements, any waste that is not delivered to a City-sponsored facility, such as the Cinder Lake Landfill or MRF, it is not counted towards overall waste generation.

#### Improper prioritization of actions

Due to the past institutionalized framework of solid waste management, the actions of diversion and landfilling were prioritized over waste prevention and any action that reduces waste at its source.

#### Lack of incentives for source reduction

For the average Flagstaff household, there is no incentive to reduce the amount of waste it produces. Residential customers given two ninety gallon bins, one for recycling and the other for trash. Each are picked up once a week, no matter how full they are. This not only results in misaligned incentives, but promotes inefficiency in solid waste operations

### Waste Diversion

While the materials management approach will challenge the City to think beyond waste diversion and recycling, it is going to be important for the City to continue to optimize its recycling and diversion systems. The table below shows that our current recycling rates leave much to be desired.

Sector	Recycling Rate (%)	Diversion Rate (%)
Single-family residential	19.17	
Commercial/ Multifamily residential	10.01	
Community wide	13.44	14

#### Lacking commercial and multifamily participation

While recycling rates in the single-family residential sector should also see improvement, commercial and multifamily properties have a recycling rate that is nearly half that observed



in single-family. This is due to the fact that in many cases, these properties completely lack recycling service for their residents. In comparison to single-family homes, commercial and multifamily properties are not provided recycling bins when they sign up for trash service.

Even in cases where there is recycling service, it is provided in a manner that is incredibly inconvenient. For example, many large multifamily properties will have four or more trash dumpsters scattered throughout a complex, but only carry a single recycling dumpster, making it burdensome for the majority of the complex to throw out their recycling in comparison to their trash.

These properties also suffer from high resident turnover, which makes education and outreach challenging. Inconsistent dumpster coloring and a lack of proper labeling can make the trash and recycling situation in a complex confusing.

#### Lack of enabling City policy

Contributing to the challenges of multifamily and commercial properties is a City Code that makes establishing access to recycling difficult. While mandating that properties provide recycling service for their tenants is a route that many communities have gone, another basic step would be to require that such properties simply provide the space necessary to add recycling infrastructure. Without space requirements, many properties are challenged later on when their tenants ask for recycling service, but property managers do not want sacrifice parking to add enclosures for recycling dumpsters. Multi-story apartment complexes can also be constructed with chutes for convenient waste disposal, but lack chutes to handle recycling and are extremely expensive to retrofit later on.

Another barrier that could be addressed through City code is the potential lack of recycling service provided by private haulers operating in the region.

#### Education

Significant steps were taken to improve education and outreach efforts during fiscal year 2017 and future efforts should continue to build on that foundation to ensure that Flagstaff residents and businesses have a better understanding of how to recycle properly. Through a partnership with Willow Bend Environmental Education Center, over 1,900 students were reached through in-class programs during the 2016-17 school year. This number is likely to increase as the program becomes more popular.

Also during fiscal 2017, staff launched the Master Recycler Program, which trains community champions who then educate their peers through in-person outreach in Flagstaff. The first class in February, trained twenty-eight residents on the basics of waste, recycling, and behavior change, and who are now sharing their expertise with their friends, coworkers, students, and neighbors. The capacity of this program will only grow as thirty new volunteers are trained each year.

#### Construction Waste

One of the most impactful elements of Flagstaff's waste stream is that tied to construction and demolition activity in the community. While preventing and diverting this waste may take new policy and infrastructure investments, there is much in the near term that could be done

to take advantage of existing programs and services. An example can be found in the landfill's green waste program, which uses clean wood as alternative daily cover. The City could explore education and financial incentives that promote the capture of this material from contractors.

## Climate Change

Reducing the climate change impacts related to Flagstaff's material consumption involves looking at both the emissions directly associated with waste disposal operations in Flagstaff, as well as emissions associated with the upstream processes of the community's materials.

### Consumption-based emissions

The majority of the emissions associated with Flagstaff's material consumption occur prior to disposal, as the material is extracted, processed, transported, and used. These emissions currently are not tracked in emission reporting, but are necessary in order to get an accurate picture of Flagstaff's greenhouse gas footprint. Consumption-based emissions are reduced through waste prevention and thoughtful choices by Flagstaff consumers that reduce impacts of the full life cycle of materials. Considering these emissions are important as they represent a potential opportunity to reduce Flagstaff's emissions in a very cost-effective manner.

## Call to Action/Recommendations

Beyond what staff has planned for Phase One based on current funding, it is recommended that the City take action on the following items in order to lay the foundation for future phases and to achieve the vision outlined in this plan:

### Funding for further assessment of barriers and opportunities

In order to make the most effective decisions in the future related to improving Flagstaff's waste and recycling programs, a deeper understanding of the landscape in Flagstaff is necessary.

### In-depth recycling and waste characterization study

In order to understand the potential for waste diversion, it is necessary to know what types of waste are being produced. The benefits of comprehensive waste characterization studies include:

- Increased revenue by diverting more commodities into the recycling stream.
- Reduced contamination in recycling loads through targeted education campaigns.
- Financial savings through the optimization of collections, processing, and disposal operations.
- Further development of local recycling markets and the creation of new jobs in the recycling industry.
- More data to support development and implementation of future diversion technology and practices.

While some states require municipalities to conduct regular characterization studies, Arizona does not. Yet, these benefits provide great reason to conduct a study as Flagstaff takes a more strategic look at its waste.

### Consumption-based greenhouse gas inventory

The majority of the emissions associated with Flagstaff's material consumption occur prior to disposal, as the material is extracted, processed, transported, and used. These emissions currently are not tracked in emission reporting, but are necessary in order to get an accurate picture of Flagstaff's greenhouse gas footprint. Consumption-based emissions are reduced through waste prevention and thoughtful choices by Flagstaff consumers that reduce impacts of the full life cycle of materials.

### Community market research

One of the most cost-effective methods for increasing recycling rates and reducing Flagstaff's environmental footprint, is through individual behavior change. Sustainability Section staff devote significant time to promoting sustainable behavior change, but it lacks the market research and data necessary to be as effective as possible. Many cities devote significant resources to surveying the community to gain a better understanding of residents attitudes and behaviors, which then informs robust and strategic marketing and outreach efforts.

Funding for market research, however small, will allow staff to be more strategic and effective in promoting behavior change in the community.

### Secure the financial sustainability of waste facilities and operations

In order for Flagstaff to achieve the vision outlined in this plan, it will be important to ensure that waste facilities and services are financially sustainable. In general, Solid Waste operations are funded by the revenues generated from disposal fees at the Cinder Lake Landfill and collection operations. This funding model may conflict with the goals contained in this document, as they are centered on reducing overall waste generation and increasing recycling and other recovery methods. A funding model that is significantly based on the disposal of waste may not be sustainable if the charge of the City is to drive disposal down and recovery up.

### Material Recover Facility (MRF)

The contract for the existing MRF, managed by Norton Environmental, is set to expire in September 2023. It is also possible for Norton Environmental to opt out of the contract before then. As a result, plans need to be developed to be able to carry out the services beyond 2024, or prior to then in the event that Norton Environmental's services end unexpectedly. The end of the contract will provide an opportunity to reevaluate how the processing of recyclables is conducted in Flagstaff and potentially expand the materials that can be recovered.

### Healthy fund balance and sustainable rate structure

In order to maintain current services Solid Waste will need to revisit its rate structure. Landfill operations subsidize all eight programs (hoist and haul, commercial and residential bin maintenance, administration, commercial recycling, commercial trash, residential recycling, residential trash and bulk pick-up). In addition, planning is under way to build capacity for anticipated future development within the current budget. This makes it difficult to manage successful recycling programs, as well as other Solid Waste services and infrastructure.

### Regional partnerships

Many of the facilities and services managed by Flagstaff not only benefit those living within the City limits, but facilities such as the Cinder Lake Landfill, HPC, and MRF are utilized by County residents

as well to process and dispose of waste and recyclable material. Support from regional partners, such as Coconino County, are necessary to ensure that services remain available.

As an example, approximately 41% of HPC customers are County residents and 17% of municipal solid waste is coming from the County.

#### Flow control

One potential proposal for increasing revenue of Solid Waste operations, would be to implement flow control legislation. This would require that all waste and recycling collected in Flagstaff be delivered to City-sponsored facilities for processing and disposal. Currently, private haulers are delivering significant tonnages to landfills and material recovery facilities outside of Flagstaff.

#### Policy changes to improve data collection

As mentioned prior, data collection needs to be improved in order to gain a better understanding of Flagstaff's waste landscape and establish baseline metrics during phase one.

#### Mandatory reporting of private haulers and waste generators operating in Flagstaff

One of the biggest gaps in existing data is due to the lack of reporting of waste that is not ultimately disposed of at City-sponsored facilities. Examples include waste and recycling collected by private hauler operating in the region or large waste generators sending their waste outside of Flagstaff to divert it through methods not available in Flagstaff. Without this data, it is difficult to know what actual recycling rates and waste generation numbers are.

One potential solution would be to implement a permitting system for private haulers operating in Flagstaff that included reporting requirements. Such a system would also allow for the City to ensure private haulers are operating in a manner that allows the community to achieve its goals

#### Policy and resources to improve access to recycling services

Recycling has long been supported by Flagstaff residents, yet many still lack access to convenient recycling services. A great example can be found in Flagstaff's multifamily complexes, where recycling often times does not exist at all, or if it does, it is still inconvenient for tenants. Local businesses might suffer from similar issues if there property manager does not choose to provide recycling service.

#### Space requirements for new development and resources

One of the biggest barriers to successful recycling programs on multifamily properties is a lack of space, which is due to the fact that new construction does not have to create dumpster enclosures with enough space to support recycling and trash bins. Additionally, multi-story complexes using chutes to handle waste from tenants are not required to have chutes to accept recycling. This lack of space and infrastructure makes developing a successful recycling program in the future when tenants demand it.

#### Support for multifamily and high occupancy housing properties

While space requirements would improve recycling for new development, existing properties that lack recycling provide low hanging fruit for increasing recycling rates. Changes to City Code could improve this situation. Many cities require that property managers provide access to recycling for tenants, as well as offer specific educational materials and signage to make it successful. Peer cities, such as

Boulder, offer financial incentives through grants and rebates to reduce the costs of building new enclosures or providing tenants with indoor recycling bins.

#### Expanded public spaces infrastructure

Much of Flagstaff's population utilizes its many City parks and open spaces, yet many of those areas lack a single recycling bin. Efforts have begun to improve this and all of the downtown area north of Route 66 has been supplied with recycling bins to equal the number of trash bins. Areas of both Thorpe and Bushmaster Parks have also added recycling infrastructure. Still, the majority of public spaces lack access to recycling service.

#### Continued funding for outreach and education

In both the fiscal year 2017 and 2018 budgets, \$68,500 has been allocated to the Sustainability Section for recycling outreach and education. This funding has supported the expansion of K-12 education programs with Willow Bend Environmental Education Center, door-to-door outreach efforts, multifamily recycling assistance, household food waste prevention programming, and the expansion of recycling in public spaces. This funding is essential to create a sustainable education and outreach program that ensures residents know how to properly use the services they are provided and maximize their participation.

#### Drafting of a Strategic Plan in Phase Two

Once a solid foundation of programming and knowledge is established in Phase One, it is recommended that the City hire a consultant to draft a strategic plan that provides a specific roadmap for achieving the vision outlined in this plan. This strategic plan would have exact policy and programming prescriptions that would allow the City to reach its goals.

## Appendix I: Phase One Action Plan

The Phase One Action Plan (Action Plan) outlines strategies the City will pursue over the next three years based on current waste reduction needs and funding availability. The Action Plan will be updated annually.

It is organized by the types of strategies utilized to foster behavior change, increase diversion, prevent waste, and grow the capacity of local waste and recycling systems. In many cases, new and existing programs will utilize multiple strategies. These strategies are outlined below:

- Behavior change and education
- Infrastructure improvements
- Lead by example in government
- Support regional and state policy and legislation
- Implement local legislation
- Require participation

The Action Plan also outlines the efforts that are planned for addressing knowledge gaps and assessing barriers.

### Behavior change and education

Staff plan to expand community-wide educational efforts on available services, incentives, and facilities as well as proper recycling/composting/source reduction methods. More specifically, this will include:

- Conduct regular “knock ‘n’ talk” events in neighborhoods and apartment complexes with City staff and Master Recycler volunteers going door to door to talk about recycling.
- Develop a sustainability welcome packet for new homeowners that is distributed through realtors.
- Expand the number of fix-it clinics offered to four per year.
- Expand media avenues for behavior change marketing, including utilizing the City fleet and NAIPTA buses to promote proper recycling and waste prevention.
- Continue to grow the Master Recycler Program by conducting another class of thirty volunteers and expanding the volunteer opportunities available to reach a greater audience.
- Launch a “Bring Your Own” (B.Y.O.) marketing campaign to promote the use of reusable products, such as grocery bags, mugs, and water bottles.
- Improve support offered to Flagstaff visitors to increase recycling and prevent waste. This will include creating a sled recycling ambassador program to help prevent and capture the waste created from broken plastic sleds in the winter time. Master Recyclers will also be utilized to provide education at popular snow-play areas. Additionally, staff will continue reusable bag bank program to offer free reusable bags at various locations throughout town.
- To increase construction and demolition waste diversion, staff will promote the resources offered by Coconino County’s Sustainable Building Program and encourage contractors to utilize existing services such as the landfill’s green waste diversion program.
- Launch a website that will be updated regularly and aim to condense and summarize all the information the community needs to achieve the vision set forth in the Strategic Plan.



- Develop a plan for scaling up food waste prevention outreach, based on the Food: Too Good to Waste pilot program.

### Infrastructure improvements

Staff plan to continue building on the efforts of the previous year by increasing access to recycling services throughout Flagstaff.

- Expand efforts to increase access to recycling on multifamily properties by improving the support offered to property managers. Examples include a guidebook that shows the benefits of adding recycling and implementing a successful program, as well as a grant program that assists with the addition of key infrastructure, such as indoor recycling bins or enclosures.
- Improve recycling in public spaces and events by expanding recycling infrastructure throughout downtown and City parks. Staff will also improve public event recycling policies, resources, and infrastructure by developing a guide to assist in increasing event diversion as well as integrate recycling into public event requirements.
- Improve the diversion capacity and financial sustainability of zero waste facilities by developing a plan for dealing with the potential nonrenewal of the contract with Norton Environmental in September 2018 and its ultimate end in 2023.
- Increase the utilization of diversion programs at the landfill and Hazardous Products Center. Strategies will include, increasing the number of drop-off events that divert waste not accepted in the single-stream recycling collection and exploring the potential for a more conveniently located “satellite site” for the Hazardous Products Center.

### Lead by example

The City as an organization must lead by example if it is to achieve its vision for the entire community. Staff already employ multiple different strategies for reducing the organization’s waste and increasing diversion.

- Expand the reach of employee education programs that have helped employees reduce their waste and recycle properly.
- Expand efforts to prevent household food waste by offering food waste prevention education and implement a composting program at all City Fire Departments.
- Increase parks recycling infrastructure. Significant recycling tonnage can be captured by providing the opportunity to recycle in City parks.
- Adhere to sustainable purchasing practices. Suggestions include those outlined in the Municipal Sustainability Plan, as well as endeavor to:
  - Require vendors to reduce packaging. Strategies for accomplishing this will vary based on the size of the purchase.
  - Ban municipal purchase of items that are natural resource intensive or non-recyclable, including, but not limited to, Styrofoam and plastic water bottles.
  - Require office supply contract to develop a purchasing catalog that adheres to sustainable purchasing practices including, but not limited to, only providing post-consumer recycled content paper products and promotion of post-consumer recycled content and Energy Star labeled items.

- Require City and contracted janitorial service to use Green Seal Certified clean products.
- Continue and expand producer take-back requirements.
- Continue education of procurement card holders and any others who make purchases in their role at the City.
- When feasible, require annual contracts to include data collection on sustainable purchasing performance to measure performance.
- Educate employees to buy only what they need.
- Encourage use of the Web bulletin board for reuse items.
- Institute a zero-waste event program, providing reusable dinnerware and recycling services for any employee appreciation or other such events.

### Support regional and state policy

In order to achieve the vision contained in this plan, support from legislative partners at the state, regional, and federal level will be necessary. The City can play a role in supporting policies at those levels.

- Lobby state legislators for bottle bill legislation. Such a policy would make producers and consumers responsible for their waste by requiring a deposit when purchasing a beverage container. Implementing a bottle bill would require retailers and consumers to pay a deposit (typically 5-10 cents) when purchasing a beverage. This deposit would then be redeemed as containers are returned to a retail store, redemption center, or reverse vending machine.

### Implement local policy changes

- Collaborate with Community Development to incorporate recycling and diversion best-practices into the high-occupancy housing planning.
- Create an option for every-other-week trash collection. This would allow single-family customers to decrease trash collection to an every-other-week frequency while increasing organics or recycling collection to a weekly frequency. Any resident still wishing to subscribe to weekly trash collection could do so for an additional charge.
- Implement flow control legislation. This strategy would prevent private haulers from collecting waste generated within Flagstaff and sending it to landfills and materials recovery facilities outside of Flagstaff. This would allow for more accurate accounting of the waste generated and diverted by Flagstaff businesses.
- Institute a permitting system for private haulers operating in Flagstaff. Such a system would allow the City to ensure that haulers are operating in a manner that allows Flagstaff to reach its goals, such as offering the same services as the City and using infrastructure with a consistent color scheme. More importantly, a permitting system would allow for reporting requirements, providing the City with a better picture of waste and diversion within Flagstaff.
- Implement discounted tipping fees for contractors who sort divertible material, such as metals and wood waste.
- Add space and infrastructure requirements into City Code to ensure that multifamily and commercial properties have the potential to develop a successful recycling program.



### Require participation

While the City will always attempt to reach its goals through education and incentives initially, requiring participation in waste prevention and diversion programs may be necessary.

- Explore opportunities for increasing access to recycling on commercial and multifamily properties. Examples could include, mandating that commercial and multifamily property managers provide their tenants access to recycling, or mandating that haulers include recycling services into rates offered to property managers.

### Assessment of barriers

During Phase One, City staff will continue to work to better understand the local waste and diversion systems, and explore the feasibility of future policy and programming. Key steps that have been identified include:

- Conduct an in-depth waste characterization study.
- Conduct a feasibility study for implementing a pay-as-you-throw rate structure. Such a rate structure would offer customers an incentive to produce less and divert more of their household waste by offering recycling services for free and increasing the cost of trash bin depending on the size.
- Conduct a feasibility study for a community-wide composting program that explores the potential for residential and commercial composting programs, which would help divert residential food scraps. Organic material currently makes up the greatest proportion of the waste disposed of at the Cinder Lake Landfill.
- Explore potential solutions for construction and demolition waste by convening the first Construction Waste Advisory Panel to better understand the challenges and opportunities in tackling the issue of construction and demolition waste.
- Improve waste/recycling data management by collecting waste and diversion data from private haulers operating in Flagstaff, creating a multifamily customer class in solid waste collection data to adequately evaluate multifamily residential services, and purchasing scales for Solid Waste trucks for better accounting of waste and recycling generation.
- Conduct a consumption-based greenhouse gas inventory.