Recycle It Right, Rutherford County!

The picture is from https://www.hagerstownmd.org/1487/Why-Recycle

Project Design & Development Plan for
The University of Tennessee Knoxville
Recycle It Right, Rutherford County

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Executive Summary

This proposal is for the design of a computer based, online, self-paced, scenario-based eLearning program to educate and inform citizens of Rutheford County, Tennessee on procedures for single stream recycling at all Ruthford County collection centers. It is being submitted by the instructional designer for consideration for adoption and implementation by the Rutherford County Government for the Rutherford County Solid Waste department's website. Anticipated rollout is January 2024.

Project Background and Needs Analysis

According to the 2022 US Census (July 2022), Rutherford County had an estimated population of 360,619. Concerns over local trash and waste disposal as well as proposed expansions of the Middle Point landfill are continued subjects of debate within Rutherford County (Miller, 2023). Rutherford County Solid Waste operates 14 convenience centers for county citizens to recycle accepted household items. Despite the 14 available locations, citizens do not always recycle correctly, and unacceptable items must be removed and sent to the landfill. This adds additional costs to the overall process of solid waste collection, and which is passed onto county residents in yearly assessment fees. The Rutherford County Government's Solid Waste Department's website does not currently feature detailed or reliable information for county residents who wish to recycle acceptable items. The computer based, online, self-paced, scenario-based eLearning program will educate and inform citizens of Rutheford County on single-stream recycling procedures.

Learner Analysis

The project's primary target audience are adult residents (18 years +) of Rutheford County who are interested in and desire to recycle their acceptable household items at any of the 14 collection centers.

Context Analysis

Learners will go to the Rutherford County Solid Waste website and will click on the link for information on Recycling in Rutheford County. The interactive instructional module will be platformed in the Articulate Rise 360 Learning Management System (LMS). Online links, such as online interactions, videos, and interactive knowledge assessments will be available so that learners can learn asynchronously and progress through the instructional module in a linear or non-linearly fashion.

Instructional Goal

The instructional project's overall goal is to provide Rutherford County residents and learners with knowledge and skills about identifying, sorting, and recycling items acceptable for single-stream recycling. Informed and educated residents will be able to recycle with confidence, which will reduce the cost of fee assessments for solid waste disposal as well as helping to keep the streets and environs of Rutheford County clean.

Instructional Treatment

The needs of learners, the demand of the content, and the instructional goal impact the selection of content and assessment. The instructional treatment outlines the progression of instruction in the modules, theoretical basis, and pedagogical approach.

Media and Technology Plan
The technology and media selections plan will adhere to the University of Tennessee System Policy. The detailed technologies chosen for this project are listed in an Appendix B.

Implementation and Evaluation Plans
This section outlines the schedule of the deployment plan and the evaluation plan based on the Kirkpatrick four-level evaluation model.

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I. Introduction

Project Background and Need

Background

In September 2023 the Rutherford County Solid Waste Department switched to single-stream recycling of household items. Previously, the 14 county collection centers accepted a wide range of items that required county residents to sort recyclables and deposit them into specific collection bins. Single-stream recycling allows a range of acceptable items to be collected and sorted afterwards at a newly constructed processing facility. The announcement for single-stream recycling was posted on the Rutherford County Solid Waste's Facebook as well as the Solid Waste's primary website. While the change was announced on the County's social media, no formal notice was provided to county residents. County residents have complained on the Nextdoor social media platform that the 14 collection centers have no formal or visible instructions on the change to single-stream collection, which confused and irritated residents (see Appendix F for screenshots). County residents who want to recycle acceptable items for single-stream recycling must educate and inform themselves about proper sorting procedures before dropping off their items. Information on acceptable items for single-stream recycling is available on the Rutherford County Solid Waste Department's website and written instructions are visibly posted at all collection centers, but even with the availability of this information many county residents express confusion and uncertainty about what items are acceptable and unacceptable.

Justifying the Need: What Is and What Should Be

Determining how much county residents "know" about recycling initiatives offered by Rutherford County is difficult to determine as no formal measurements of awareness been conducted or are available (David Hughes, personal communication, April 18, 2023). Currently, the only way for county residents to inform and educate themselves about single-stream recycling initiatives offered by Rutherford County is to visit the Solid Waste website or read the printed, posted instructions at any of the 14 collection centers. While the available information is useful, it is not overly helpful as a visitor to the website must navigate through several hyperlinks to find relevant information. At physical collection centers, such as the Haley Road collection center, posted instructions on which items are acceptable for collection are printed on an 8 ½ x 11 sheet of paper that is taped to the collection bin (see Appendix F for visual reference). Other collection centers feature similar signs which are easier to read, but offer no assurances that residents will look at, read, or fully understand the information posted. The lack of useful and helpful information leads to a two-way street of costs. Residents who do not recycle items correctly cause the collection process to be delayed in the sorting procedures. If a collection is contaminated by too many unacceptable items, the Solid Waste Department is assessed a disposal fee for removing the contaminated items and using a third-party contractor for collection and transport to the county landfill. This cost is then passed along to Rutherford County residents in yearly assessment fees for solid waste disposal.

The proposed instructional project for the design and implementation of a computer based, online, self-paced, scenario-based eLearning program will educate and inform citizens of

Rutheford County on all aspects of single-stream recycling procedures. In the desired situation, there will be an increase in resident efficiency in pre-sorting acceptable items prior to drop-off. By knowing the requirements of single-stream recycling, county residents (learners) will reduce the amount of unacceptable items entering the single-stream, thereby reducing the cost of solid waste disposal fees. The project will contribute to internal and external stakeholders by improving learners' essential knowledge, understanding and actions.

Filling the Gap to Meet the Need

The proposed instructional project for a computer based, online, self-paced, scenario-based eLearning program will enable county residents (learners) to synthesize prior learning of household item recycling and use a step-by-step visual identification system to sort acceptable household items for recycling. These skills are important for the collection process at county collection centers as recycling correctly will encourage the Solid Waste Department to continue to offer recycling services. The learning scenarios will cover the single-stream process from identification of acceptable items, identification of unacceptable items, assessment of knowledge of acceptable and unacceptable items and guidelines for visiting county collection centers. Since the proposed program will be web-based, it will be conveniently located and available on the Rutherford County Solid Waste Department website o anyone who has access to a computer that can access the internet using a web browser. Upon completion of the instructional module, users will be able to download and save to their device a digital pamphlet visual reference guide for future reference.

Target Learners Analysis and Implications for Design

Demographic Data

The project's primary target audience are residents of Rutherford County, Tennessee who have access to a computer or smart device that can access the internet. According to the 2021 US Census, the county registered 360,619 citizens. 96.1% of households in 2021 reported having a computer, and 91.1% reported having a broadband Internet subscription.

The diversity, range of characteristics, and educational background in any learner group impacts the treatment of content, mode of delivery, and amount of learner choice in the instruction. As of 2021, 92.3% of county residents are reported as having graduated high school or equivalent and 33.5% have reported holding a Bachelor's degree or higher. 12.5% of county residents report speaking a language other than English at home, so it is not likely that the instructional module will be problematic for residents who do not have a strong proficiency of the English language. Learner location and time zone will not be an issue since the scenarios will be delivered as self-paced, asynchronous instruction. The instructional module will be accessible for computer users as well as smart phone devices.

Physiological Characteristics

Any accessibility issues will be addressed by designing to comply with applicable legislation for individuals with disabilities. The instructional design will feature adequate color contrast,

alternate text for images, and the capability for enlarging images. A screen design that allows for zooming in and that is more minimalistic will be considered, so that those with vision challenges can still see it on their mobile devices.

Cognitive Ability

Learners who have novice experience interacting with internet websites will have no difficulty engaging and participating in the instructional module. To engage and retain the learner's attention and commitment to completing the learning module, instructional content will be divided into sections that address each aspect of the single-stream recycling process. The designer will periodically update and refresh the content and design to address and implement any changes determined by the Rutheford County Solid Waste Department and County Government.

Prior Knowledge or Experience

Rutheford County Schools feature and promote recycling efforts in all K-12 school campuses, so county students are made aware of and encouraged to participate in recycling. While not all residents of Rutherford County are alumni of Rutherford County Schools, learners are assumed to have some prior experience with recycling procedures and the most common types of items acceptable for collection. Learners are expected to have reading comprehension skills equivalent to the Program for the International Assessment of Adult Competencies (PIAAC) defined literacy competency as "the ability to understand, evaluate, use and engage with written texts to participate in society, to achieve one's goals, and to develop one's knowledge and potential" (p. 61, OECD 2013). This instructional module will utilize images of recyclable items, so learners are expected to be familiar with what household recyclable items look like.

The learning scenarios will build on prior knowledge by incorporating brief assessments on the essential knowledge that students should recall from prior learning experiences concerning and related to recycling. Because the instructional module is designed around single-stream recycling, the learning scenarios will begin from a broad perspective and narrow to more specific aspects of single-stream recycling.

Motivations

A study of solid waste needs assessment conducted from 2006 to 2015 found that Rutheford County resident participation in recycling and solid waste was consistent and reach an 81% diversion efficiency rate in 2015. It is obvious that residents are willing to participate in recycling initiatives if such initiatives are offered. Rutherford County does not offer curbside recycling as a part of its residential solid waste collection. Residents can pay for curbside recycling through Recyclops (formerly Stones River Recycling). Residents can recycle their household items free-of-charge, provided they are Rutherford County residents, at any of the 14 collection centers. While curbside recycling services offer less hassle in the sorting of items, the convenience of dropping off items free-of-charge will give county residents (learners) a sense of pride and accomplishment in maintaining the health and beauty of their county.

Context Analyses

Performance Context

Learners (county residents) who complete the instructional module will be playing a vital part in the correct procedures of single-stream recycling, which will increase efficiency of solid waste diversion and reduce waste accumulation in local landfills. Learners may use the knowledge and skills gained through the project to assist and inform other residents in the proper procedures of single-stream recycling. Residents helping other residents will also help the collection center staff in the supervision of the collection center sites. Greater efficiency in item drop-off and collection will also reduce traffic delays and vehicles waiting to enter collection center sites as many of the delays are caused by residents not knowing or understanding which items are acceptable and unacceptable for collection.

For this instructional module, the performance context is how the learners will directly apply what they have learned. The design of this instructional module is anticipating long-term behavioral change, so learners can apply what they have learned immediately or at their leisure.

Learning Context

There are several avenues to consider in how to generate awareness of this resource. One option is to facilitate a mailing campaign in which every county resident is mailed an information flyer announcing the availability of the instructional project. As an incentive for residents to complete the instructional module, the county could offer a drawing or raffle by including a QR code upon completion of module that would allow users to enter their contact information. A second option would be to include an informational flyer in the yearly county assessment letters. A third option would be utilizing radio and print media local to Rutherford County, such as the Murfreesboro Voice magazine and WGNS radio. The instructional module will be designed, implemented, and hosted in the Articulate Rise 360 learning management system. The entire project will be accomplished through six-sections in a single, never-ending page layout in Articulate Rise 360. Learners may access all the multimedia resources through Articulate Rise 360 such as YouTube videos, interactive quizzes, and downloadable and distributable PDF pamphlets.

Learners will learn asynchronously and complete their instructions individually. Learners will have the option to complete the instruction from the beginning to the conclusion, or they can go to any of the sections of the instruction they wish. The instruction is self-paced, there is no deadline or time limits for completion. Learners will not be able to save their progress but will have the choice to navigate to any section of the instruction. To access the visual reference guide pamphlet, learners will be asked to complete a learning assessment in the form of an interactive matching game. If learners do not wish to complete the assessment, a bypass option will be available.

The content learned in this project will be directly related to the knowledge and skills needed to successfully participate in single-stream recycling initiatives offered by Rutheford County Solid Waste. The cost of this instructional module will be provided by the Rutherford County Government as a part of its website and online domain expenditures. To further benefit the

learner and encourage participation, the instructional module will be open and available to anyone who wishes to participate, although incentives such as prizes and rewards for participation will be limited to Rutherford County residents.

Cultural Context

Public education about recycling efforts began in earnest in 1970's in the United States and continues to this day (Hooper, 2020). Rutheford County Schools promote and encourage district wide recycling efforts. County residents who have graduated from Rutherford County Schools will have been informed and encouraged to participate in single-stream recycling. County residents who have moved to Tennessee from other states or other countries may be aware of general recycling procedures, but not the specifics of single-stream recycling. Global efforts to address climate change and encourage efforts in solid waste reduction have been circulating in the global media consciousness since the first term of the Obama Administration (*A historic commitment to protecting the environment and addressing the impacts of climate change* 2016).

For learners who do not know about or understand recycling of household items, this project will information and educate learners about the importance of recycling and the positive and negative effects on the environment, as well as the cost/benefit of recycling correct. No matter what degree of knowledge, awareness or understanding of recycling, after completion of this module, or any section of the instruction, leaners will be better informed and educated on how to recycle and why recycling matters to them, to their community and to the planet.

Constraints and Resources

Constraint Analysis

The primary constraint will be learner commitment. It is difficult to predict if a learner will commit to completing the entirety of the instructional module or will engage only the parts that are most relevant to them at their time of accessing the module. Offering an incentive for participation, such as a QR code that would allow a learner/user to enter their name into a monthly drawing for a gift card may be the most effective way to encourage participation and completion of instruction. Reward and incentives would be limited to county residents with a verified and legitimate address in Rutherford County. For non-county residents, a QR code or a partnership with a local business or organization could also be considered and implemented.

Other possible constraints in the project include:

- Progress of Completion: Informational priority will be given to the most relevant and important part of the recycling process, and this may dissuade learners from further progression through the module if they acquire the information that they consider most important.

- Cost: The project can be created at the cost of a yearly subscription to Article Rise 360 with the instructional module incorporated and hosted on the Rutherford County Solid

Waste Department website. Revision of instruction module will not require additional billing. The designer will not ask for nor require any compensation for periodic updates or modifications to the instructional module for a period of five years. If the Rutherford County Government no longer wishes to host the instructional project, the designer will cancel the Articulate Rise 360 subscription and close the module.

- Online instruction: Instructional module is web based and will require broadband access for learners and providers. Learners and providers will also need to have the most current Windows or Mac platform and an up-to-date web browser such as Google Chrome or Mozilla Firefox. The designer will make it realistic that any learner of novice internet usage experience will be able to access and engage module with little difficulty.

Resource Analysis

Available Subject Matter Experts are Solid Waste Department officials and collection center staff members who have the requisite skills and knowledge in single-stream recycling procedures. Any decisions related to the collection process, acceptable items and sorting procedures should be deferred to the Director of Solid Waste or Collection Center Foreman.

Online interaction tools, PowerPoint presentations, video creation tools such as Zoom, YouTube, video editing and graphic design software, LinkedIn Learning, other resources for teaching and learning about recycling protocols and procedures are available for the project.

SME availability must be considered for the development, review, and testing of the instruction, specifically for the following:

- review of the process of identification of acceptable and unacceptable items;
- verification of the accuracy of the proper sorting procedures of acceptable types of glass items;
- verification of the accuracy of the proper sorting procedures of mixed paper items;
- verification of the accuracy of the proper sorting procedures of cardboard items;
- identification of incoming/onboarding collection center attendants who can complete the instructional module as part of required training for county employment.

Instructional Goal

The Recycle It Right, Rutheford County instructional project will provide county residents (learners) with necessary knowledge and applicable skills about identifying acceptable household items for single-stream recycling at any of the 14 Rutherford County Convenience Centers for recyclable item collection. Learners will gain confidence in their skills and abilities to recycle correctly and will be motivated to share their knowledge and skill with other learners for a clean and beautiful Rutherford County.

II. Instructional Treatment

This section includes the content summary of the instructional project, the project's linear progression, theoretical and pedagogical bases for the instruction, a summary of the content that consists of the aligned instruction elements (i.e., the instructional outcome, assessments, strategies), the factors influencing the content treatment, and technology and media plan.

Content Summary

This project introduces learners to the process of single-stream recycling and the knowledge and skills necessary to effectively participate. The project is designed as a training program and informational resources delivered through a content management learning system. Learners will apply what they have learned to effectively participate in single-stream recycling efforts in Rutherford County, Tennessee. This project consists of six modules in total, including all major types of acceptable items for single-stream recycling, knowledge assessments, and a visual reference guide for learners to save to their devices.

Progression of Instruction

The project's progression is to systematically instruct learners about take learners through the major types of acceptable items for single-stream recycling. Instruction is divided across 6 Major Subject modules and 6 sub-modules. Module Zero is an introduction to single-stream recycling in Rutherford County and includes a motivational instructional acronym to motivate learners. Module One's instruction covers the identification and sorting of Type 1 and Type 2 plastic items. Module Two's instruction covers the identification and covers the identification and sorting for Mixed Paper items. Module Three's instruction covers the identification and sorting of Cardboard items. Module Four's instruction covers the identification and sorting for Steel and Aluminum Cans. Module Five's instruction covers the identification and sorting options for Clear and Colored Glass items. Module Six's instruction covers the identification and sorting options for Unacceptable items for single-stream recycling. Module Seven is a test of knowledge/learning assessment and contains a visual reference guide for learners to save to their computer or smart device for future reference. Sub-modules for Modules One through Six are optional review quizzes for learners to test their knowledge. Learners may complete their sub-modules or bypass directly to Module Seven. See Figure 2.1 for a visualization of the whole progression of the instruction.

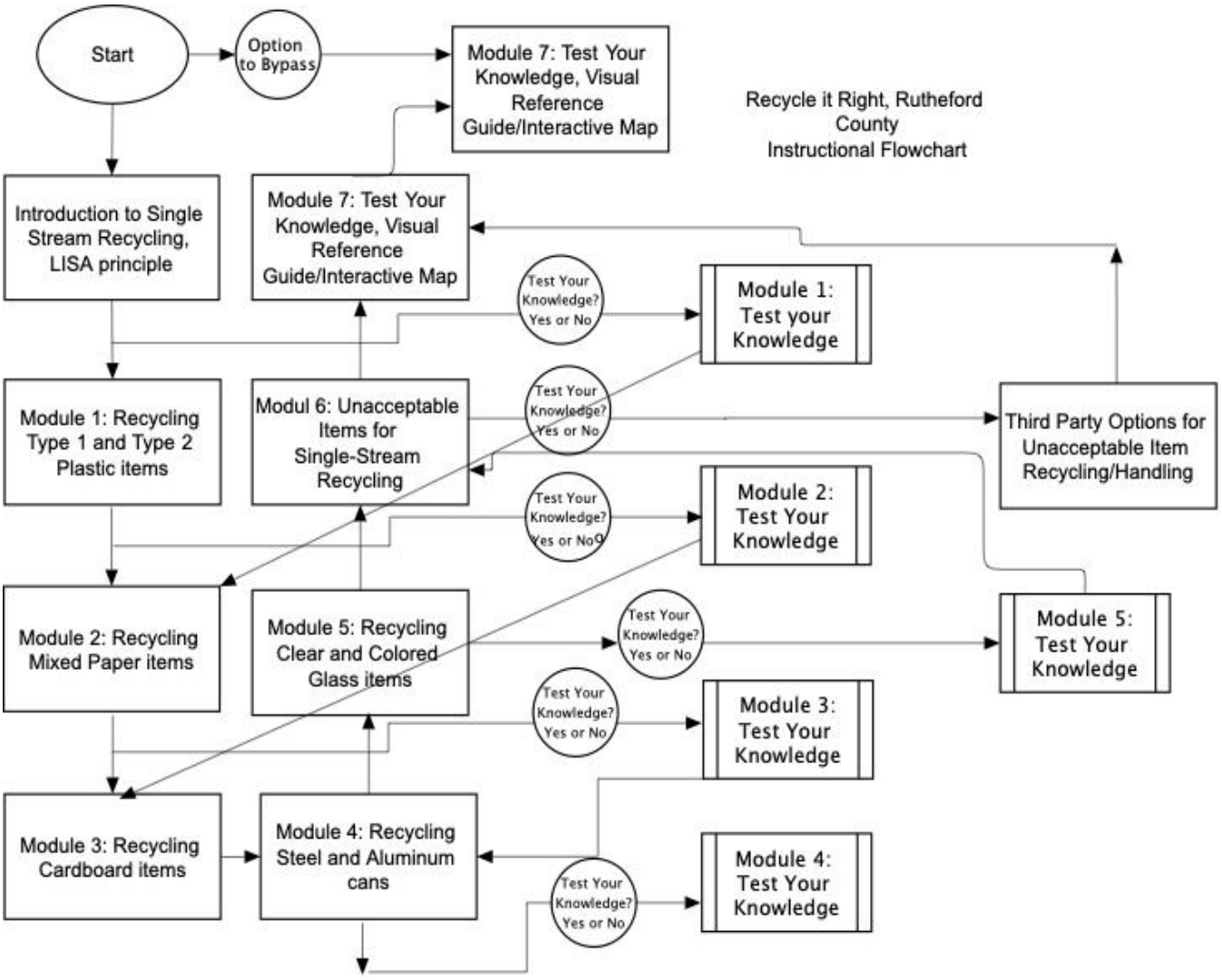

Figure 2.1: Progression of Instruction Flow Chart

Theory Base and Pedagogical Approach

The Recycle it Right, Rutherford County instructional project is designed for Rutherford County residents, at least 18 years of age, who are aware of and interested in participating in Rutherford County's efforts to reduce the amount of solid waste through single-stream recycling.

Participating in county recycling efforts involves a personal choice on the part of the learner. The learner must view their participation as a solution to a problem. This learning experience aligns with the tenet of Constructivist theory which states that "Learning is facilitated when information can be directly and practically applied to solving a problem or filling an identified gap" (Larson & Lockee, 2020, p.142). To instruct a learner towards making a choice to participate requires the instruction to be objective in scope, but subjective in learner motivation. In other words, it is essential that the learner sees the instruction as personally beneficial to themselves as well as beneficial to their community, environment, and fellow citizens. It is also important that the learner does not perceive the instruction as a "lecture" but rather a dialogue about the actions they can take in solving a problem in their community.

The instructional project is primarily Instructivist in nature due to the specific demands of single-stream recycling. This relates to the objective aspect of the process of recycling. The content of instruction will be primarily taught through traditional Instructivist course work and the brief, optional end-of-module assessments included throughout the instruction are Instructivist in nature. The choice of the learner to participate in single-stream recycling is subjective, so elements of subjective, Constructivist learning are integrated with objective, Instructivist elements. The objective of using both objective Instructivism and subject Constructivism is to encourage the learner towards a "communal constructivism" which involves "an approach to learning in which students not only construct their own knowledge (constructivism) as a result of interacting with their environment (social constructivism) but are also actively engaged in the process of constructing knowledge for their learning community" (Tangney et al., 2001, pp. 3114-3119). More simply put, the learners are learning for themselves as well as learning for the benefit of their community. The knowledge and skills taught by the instruction is intended to be shared with others as "giving students responsibility will train them to be responsible" (Tangney et al., 2001, pp. 3114-3119).

Content Analysis

Recycling education varies from county-to-county and state-to-state and is based on the services offered by the county's solid waste management division. For Rutherford County, Tennessee the learning resources for county recycling efforts offered on the website for the Solid Waste Department are not overly useful or helpful. A county resident committed to learning about single-stream recycling would have to piece the correct information together from external websites or information sources. Visiting a county collection center may offer some help, but not all visible and posted information has been updated to reflect single-stream protocols and requirements.

To correct the problem of incorrect and conflicting information, the content analysis for single-stream recycling in Rutherford County has three primary goals (Larson & Lockee, 2019, p. 97):

- To ensure accuracy and completeness of the content.
- To limit the content to absolute essentials.
- To identify a content treatment for the design that effectively addresses.

The following tasks in the process of analyzing the content were provided.

- We classified the content based on Benjamin Bloom's Learning Domains, Bloom's Cognitive Skill Levels, and Robert Gagne's Learning Outcomes.
- We conducted a DIF analysis (difficulty, importance, frequency) and used it to distinguish between the "need to know" and "nice to know" content (see Appendix A), resulting in a five-module instructional design with optional, supplemental sub-modules.

The order of the topics has been divided by material type and does not necessarily follow an organized sequence. Rather, the sequence is organized practically based on the type of items acceptable for single-stream recycling and the estimation of the number of items to be brought for collection. For example, Type 1 and Type 2 plastics will most likely constitute the bulk of

items brought for collection while Mixed Paper, Cardboard and Glass items will be lesser in quantity.

Appendix B shows the learning outcomes, assessments, and learning and teaching strategies derived from the content analysis.

Factors Impacting Content Treatment

Several factors influenced the decisions on content treatment, including the demands of the content, the needs of the learners, and the instructional goal of the project.

Demands of the Content

Learners must first understand the process of single-stream recycling, so a logical first step is to Remember, which is the foundation of Bloom's revised cognitive thinking skills taxonomy (Anderson et al., 2014, pp. 67-68). Second, learners must understand and remember the types of items acceptable for single-stream recycling. Third, learners will need to recall previously learned information and apply this knowledge to the skill of sorting recyclable items for drop-off at a county collection center. Fourth, and most importantly, learners can check their knowledge and skills by helping others in their community learn about single-stream recycling in Rutherford County.

To facilitate learners in remembering and understanding the content of the instruction, there will be optional, supplemental learning assessments after each major subject module. The content that should be recalled from memory and be applied in the assessment activity will include identification of acceptable, recyclable items and items that are not acceptable for single-stream recycling. Learners who have already completed the instruction or are returning to the instruction for review can choose to bypass the major modules to access a visual reference guide.

See Appendix C for a visualization of the message design principles, form and flow factors, and media attributes to effectively instruct content.

Learner Needs

Most of the learners who will partake in this instruction are interested in, aware of, and are ready and willing to participate in the County's recycling efforts. The most effective way for learners to access the instruction is through a learning management system that is asynchronous and online to be accessed on desktop computers, laptops, tablets, and mobile devices. Content is chunked into segments for easy learner consumption and progression. There are no time limits or constraints to the instruction and learners have the option to complete each module or choose which module they want to complete. Learners may also bypass all the modules to be taken to the visual reference guide and interactive map. Learners can revisit the instruction at any time.

To encourage completion of instruction, future developments and modifications to the instruction may include a QR code or submission form for the learner to be entered into a monthly drawing for a prize or a discount code to be redeemed at a participating business in Rutherford County.

The text of the instructional content will be sized in 14 Font so that text is easy to read. Images used in the instructional modules can be clicked upon to enlarge their size.

The overall tone of the instruction is positive and encouraging. The designer has chosen to focus on the positive aspects that recycling can have on a community, the environment, and the planet. It is the intent of the design and instruction that learners are encouraged to make recycling correctly a long-term commitment.

Project Instructional Goal

The overall instructional goal of the project is to provide learner with knowledge and skills about single-stream recycling in Rutherford County and how to effectively participate by collecting, sorting, and depositing acceptable items at any of the 14 county collection centers. The overall instructional goal also influences the design of instructional content. As listed in Appendix A, the Content Analysis Summary Chart, all the selected content relates to and supports the instructional goal.

Technology and Media Selections Plan

The designer has chosen technology and media tools to support asynchronous, online learning that occurs in a convenient environment for learners. All instruction is published and available to learners within the Articulate Rise 360 LMS (learning management system).

III. Implementation and Evaluation Plan

Implementation Plan

The Recycle It Right, Rutherford County instructional project will be via the Articulate Rise 360 learning management system. The instructional designer for this project, Andrew Rosbury, will be responsible for publishing the project upon completion. Andrew Rosbury will handle the maintenance of the content, design, instruction, and any major changes or revisions necessary. This project is expected to be deployed on March 1st, 2024. Table 3.1 provides a summary of the project schedule with milestones and dates.

Table 3.1 Project Schedule with Milestones and Dates

Resources Estimate	
Project Tasks	Estimate Hours
Project planning/meetings	20 hours
Content selection and development	20 hours
Learning Management System interactions development	40 hours
Learning Assessments Development	20 hours
Finalization of LMS Content	20 hours

Product testing, evaluation, revisions (multiple people)	40 hours (1 person, 40 hrs. ea.)
Total person hour estimate	160 hours

Project Schedule			
Milestone/Deliverable	Responsible Party	Proposed Due Date	Completed
Draft design plan	Instructional Designer	12/04/2023	√
Design plan reviewed	Instructional Designers	12/08/2023	√
Module 1: Type 1 and Type 2 Plastics	Instructional Designers	12/04/2023	√
Module 1 Reviewed	Instructional Designers	12/11/2023	
Module 2: Mixed Paper Types	Instructional Designers	12/08/2023	√
Module 2 Reviewed	Instructional Designers	12/13/2023	
Module 3: Cardboard Items	Instructional Designers	12/17/2023	
Module 3 Reviewed	Instructional Designers	12/24/2023	
Module 4: Steel and Aluminum Cans	Instructional Designers	01/04/2024	
Module 4 Reviewed	Instructional Designers	01/08/2024	
Module 5: Clear and Colored Glass items	Instructional Designers	01/12/2023	
Module 5 Reviewed	Instructional Designers	01/16/2024	
Module 6: Unacceptable Items and Alternative Options	Instructional Designers	01/20/2024	
Project Schedule			

Milestone/Deliverable	Responsible Party	Proposed Due Date	Completed
Module 6 Reviewed	Instructional Designers	01/24/2024	
Module 7: Visual Reference Guide/Finalization of Content	Instructional Designers	01/28/2024	
Module 7 Reviewed	Instructional Designers	02/04/2024	
Instructional Project Final Revisions	Instructional Designers	02/10/2024	

Evaluation Plan

Formative review for the project will be implement in three stages by four distinct groups of internal and external stakeholder evaluators:

Evaluation Group 01: External Stakeholders. The instructional designer will recruit, at minimum, 50 learners who are representative of the target audience (18 years old, resident of Rutherford County, high school graduate or equivalent) to participate in and review the usability, accessibility, integrity, and *look and feel* of the instructional project.

Evaluation Group 02: Subject Matter Experts. The instructional designer will recruit SME's from Middle Tennessee State University's College of Education to review instructional design, methodology, content, and project integrity. The instructional designer will also recruit SME's from MTSU's College of Applied Science's Environmental Science program to review the accuracy of the information presented for item collection for single-stream recycling.

Evaluation Group 03: Internal Stakeholders. Department heads and supervisors in Rutherford County's Department of Solid Waste will be invited to complete the instructional project and offer reviews and feedback on usability, accessibility, content accuracy and integrity, and *look and feel*.

Evaluation Group 04: Internal Stakeholders, Rutherford County Solid Waste Employees. The instructional designer will invite recycling center employees to complete the instructional project and offer reviews and feedback on usability, accessibility, content accuracy and integrity, and *look and feel*. Employees will also be asked to evaluate the effectiveness of the instruction as a possible method for training new employees.

The instruction designer will use the Kirkpatrick four-level evaluation model (Larson & Lockee, 2020, p. 372) for formative and summative measurements. These measures are outlined in Appendix D.

IV. Design Plan Conclusion

This project, Recycle it Right, Rutherford County! is proposed to meet the current shortcoming in formal and accessible knowledge and training for Rutherford County residents wishing to participate in single-stream recycling efforts currently offered by Rutherford County's Department of Solid Waste. The design plan of this document aims to meet the instructional goal of this project to help learners master knowledge and skills about developing and effectively sorting acceptable items for single-stream recycling. Suggestions and feedback from the IT570 instructor and peers are reflected in the design plan. Appendix E shows the detail of the reflection. The instructional designer welcomes additional feedback from reviewers and stakeholder.

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Appendices

Appendix A

Content Analysis Summary Chart

Content Item	**Learning Domain (K, S, A, or combo)**	**Bloom's Cognitive Thinking Skill Level**	**Need-to-Know** *(essential)* **OR Nice-to-Know?**	**DIF Analysis** *(Difficulty, Importance, Frequency),*	**Gagné's Learning Outcome Type**
Introduction: Rutherford County Single-Stream Recycling, LISA plus K	Knowledge/Skill	Remember	Need to Know	Low/ High/ Low	Intellectual Skills: Discrimination, Concrete Concept
Module 1: Recycling Type 1 and Type 2 Plastic items	Knowledge/Skill	Remember/Understand	Need to Know	Low/ High/ Moderate	Intellectual Skills: Discrimination, Concrete Concept
Module 2: Recycling Mixed Paper items	Knowledge/Skill	Remember/Understand	Need to Know	Low/ High/ Moderate	Intellectual Skills: Discrimination, Concrete Concept

Module 3: Recycling Cardboard items	Knowledge/Skill	Remember/Understand	Need to Know	Low/ High/ Moderate	Intellectual Skills: Discrimination, Concrete Concept
Module 4: Recycling Steel and Aluminum Cans	Knowledge/Skill	Remember/Understand	Need to Know	Low/ High/ Moderate	Intellectual Skills: Discrimination, Concrete Concept
Module 5: Recycling Clear and Colored Glass items	Knowledge/Skill	Remember/Understand	Need to Know	Moderate/ High/ Moderate	Intellectual Skills: Discrimination, Concrete Concept
Module 6: Unacceptable Items for Single-Stream Recycling	Knowledge/Skill	Remember/Understand	Nice to Know	Low/ High/ Moderate	Intellectual Skills: Discrimination, Concrete Concept
Module 7: Test Your Knowledge	Knowledge/Skill	Apply	Need to Know	Moderate/ High/Low	Attitude

Appendix B

Aligned Outcomes

Learning Outcomes/Objectives	Assessments	Teaching/Learning Strategies
The learner will		
1.0 (Knowledge/Skill) Demonstrate understanding of Type 1 and Type Plastics eligible for recycling by remembering and identifying examples of Type 1 and Type 2 household plastic items from visual examples.	Multiple Choice visual challenge using 5 examples from teaching strategy. Optional, but encouraged.	(teaching strategy) Overview video of "Know Your Plastics" and a text-based tutorial on identification and sorting of Types 1 and 2.
1.1 (Knowledge/Skill) Demonstrate understanding of Mixed Paper types eligible for recycling by remembering and identifying examples of acceptable Mixed Paper types from visual examples.	Multiple Choice visual challenge using 5 examples from teaching strategy. Optional, but encouraged.	(teaching strategy) Overview video of "Can I Recycle That? Mixed Paper" and a text-based tutorial on identification and sorting of acceptable Mixed Paper types.
1.2 (Knowledge/Skill) Demonstrate understanding of Cardboard types eligible for recycling by remembering and identifying examples of acceptable Cardboard types from visual examples.	Multiple Choice visual challenge using 5 examples from learning strategy. Optional, but encouraged.	(learning strategy) Learners complete an exercise in identifying acceptable cardboard items from unacceptable items.
1.3 (Knowledge/Skill) Demonstrate understanding of Aluminum and Steel cans eligible for recycling by remembering and identifying examples of acceptable Aluminum and Steel can types from visual examples.	Multiple Choice visual challenge using 5 examples from learning strategy. Optional, but encouraged.	(learning strategy) Learners complete an exercise in identifying acceptable Aluminum and Steel can items from unacceptable items.
1.4 (Knowledge/Skill) Demonstrate understanding of Glass (clear and colored) items eligible for recycling	Multiple Choice visual challenge using 5 examples	(learning strategy) Learners complete an exercise in identifying acceptable Glass items from unacceptable items.

by remembering and identifying examples of acceptable types from visual examples.	from learning strategy. Optional, but encouraged.	
1.5 (Knowledge/Skill) Demonstrate understanding of Unacceptable Types 3-7 Plastics not eligible for recycling by remembering and identifying examples of unacceptable Types 3-7 Plastics from visual examples.	Multiple Choice visual challenge using 5 examples from learning strategy. Optional, but encouraged.	(learning strategy) Learners complete an exercise in identifying unacceptable Types 3-7 Plastics from acceptable items.
1.6 (Apply) Demonstrate knowledge and understanding of Single-Stream recycling by completing an identification and sorting assessment from visual examples.	True or False, Multiple Choice visual reference assessment. Optional, but encouraged.	(learning strategy) Learners complete an assessment to test their knowledge and understanding of the principles of single-stream recycling.

Appendix C

Design Principles, Form and Flow Factors, and Media Attributes

Learning & Message Design Principles to Address	FORM & FLOW FACTORS	NOTES & Possible Media Attributes to Optimize
Understanding the work: evaluate what must be remembered	The instruction progresses topically with review activities to reinforce learning and encourage memorization	Will use Bold font in text sections to strategically draw attention to key words and concepts that will help learner remember major tenets of instruction
Build deeper understanding: promote remembering	The instruction introduces an acronym, LISA, to encourage learners to memorize the steps in the recycling process. The letter "K" is introduced as a non-formal, additional letter to the acronym to stimulate curiosity and encourage action.	Will use Rise 360 flashcards to promote memorization of acronym by having use "flip" the cards to learn the meaning.
Build Deeper Understanding: supply missing knowledge	The instruction uses repetition in text to reinforce the principles and requirements of single-stream recycling so that when learners take action, their actions will be in-line with single-stream recycling requirements.	At the end of each section, a review block of text will cover key concepts and principles.
Make Content Easier to Understand: don't just tell, show	The instruction uses images and video examples to reinforce the principles and requirements of single-stream recycling so that when learners take action, their actions will be in-line with single-stream recycling requirements.	Clickable images that will expand to full size and embedded videos will offer learners interactive visual examples.

Make Content Easier to Understand: using memory	The instruction introduces an acronym, LISA, for learners to use as a reference word remember the principles and requirements of single-stream recycling so that when learners take action, their actions will be in-line with single-stream recycling requirements.	Interactive flash cards in the LMS as well as review summaries to promote memory.
Build Deeper Understanding: check and fix understanding	The instruction will feature “test your knowledge” interactive review quizzes after each major content section.	Interactive items in the LMS such as flash cards and expandable menus will assist learners in checking and fixing their understanding. Also, a savable reference guide will be provided at the conclusion of instruction.

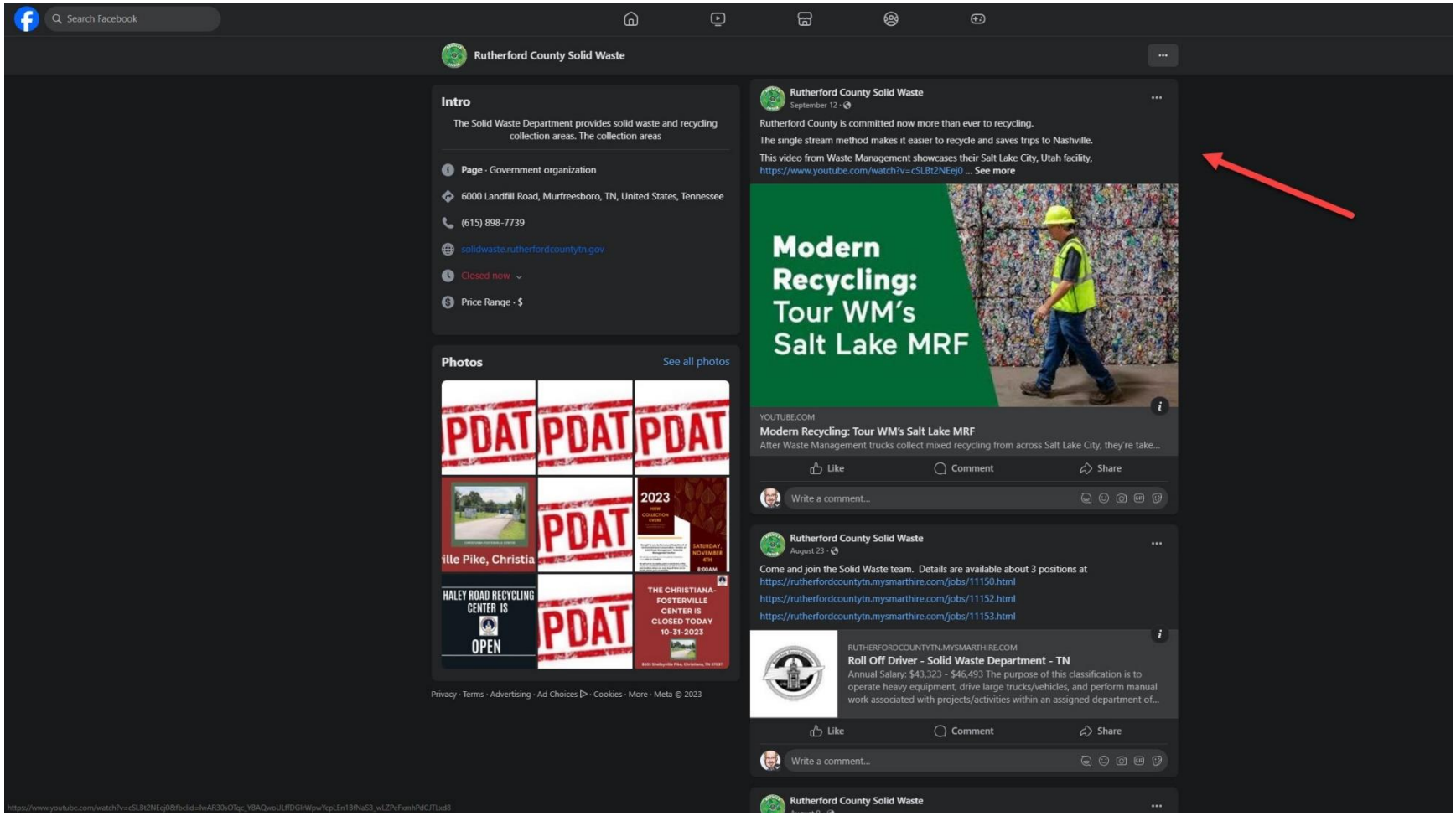
Appendix D

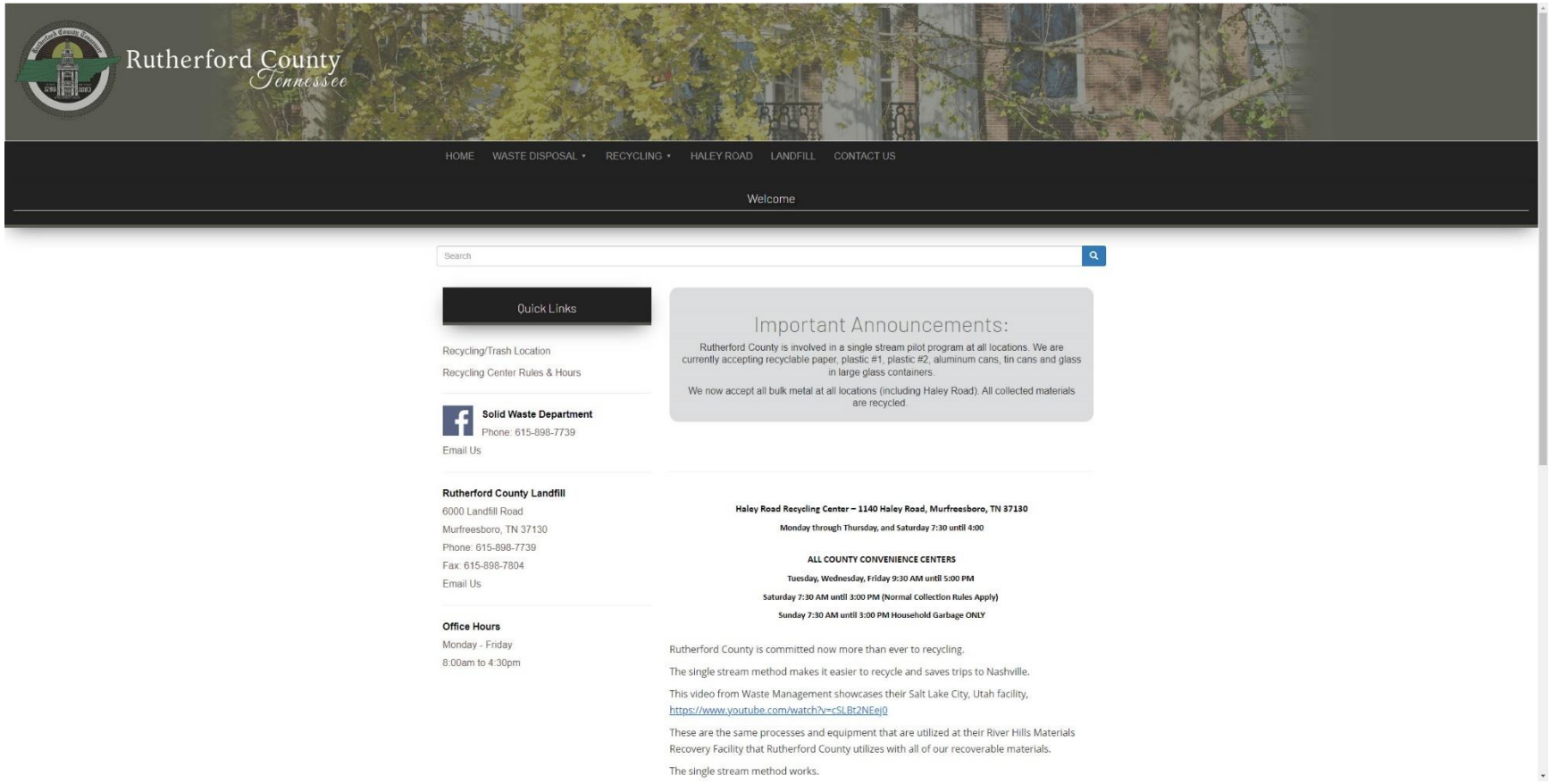
Kirkpatrick Four-Level Evaluation Plan

Kirkpatrick Level	Description	Measurements to Implement
Level 1: Reaction	This level of evaluation gauges the learners' satisfaction with and reaction to the project.	This level will be measured formatively with surveys during usability tests of the prototype instructional design. It will be measured summatively by collecting project participants' (Group 01) evaluation data.
Level 2: Learning	This level ascertains the success of the learning materials through the results of knowledge assessments.	This level will be measured summatively by evaluating instructional effectiveness through an applied skills test in which a group of 10 learners (Middle Tennessee State University students) will identify and sort acceptable items from non-acceptable items and deposit acceptable items in a test environment.
Level 3: Behavior	This level evaluates how learners apply their knowledge, skills, and attributes from the training module content.	This level will be measured summatively collecting project participants' (Group 01) reported data. The group of 10 learners will be tasked with keeping visual reference journals of their recycling efforts and activity during a 6-week period. Instructional designer will correspond, and review journal entry progress and recycling efforts with participants.
Level 4: Results	This level determines the long-term results and impact of the Recycle it Right, Rutherford County educational campaign.	This level will likely not be measured. However, project stakeholders may continue to collect evaluation data on the continuity of knowledge and skills by regularly inviting learners to participate and offer feedback for further improvement

Appendix F

Rutherford County Solid Waste Department Social Media Activity and Community Reactions




Rutherford County
Tennessee
HOME
WASTE DISPOSAL
RECYCLING
HALEY ROAD
LANDFILL
CONTACT US
Welcome
Search
Quick Links
Recycling/Trash Location
Recycling Center Rules & Hours
Solid Waste Department
Phone: 615-898-7739
Email Us
Rutherford County Landfill
6000 Landfill Road
Murfreesboro, TN 37130
Phone: 615-898-7739
Fax: 615-898-7804
Email Us
Office Hours
Monday - Friday
8:00am to 4:30pm
Important Announcements:
Rutherford County is involved in a single stream pilot program at all locations. We are currently accepting recyclable paper, plastic #1, plastic #2, aluminum cans, tin cans and glass in large glass containers.
We now accept all bulk metal at all locations (including Haley Road). All collected materials are recycled.
Haley Road Recycling Center – 1140 Haley Road, Murfreesboro, TN 37130
Monday through Thursday, and Saturday 7:30 until 4:00
ALL COUNTY CONVENIENCE CENTERS
Tuesday, Wednesday, Friday 9:30 AM until 5:00 PM
Saturday 7:30 AM until 3:00 PM (Normal Collection Rules Apply)
Sunday 7:30 AM until 3:00 PM Household Garbage ONLY
Rutherford County is committed now more than ever to recycling.
The single stream method makes it easier to recycle and saves trips to Nashville.
This video from Waste Management showcases their Salt Lake City, Utah facility,
https://www.youtube.com/watch?v=cSLBt2NEej0
These are the same processes and equipment that are utilized at their River Hills Materials Recovery Facility that Rutherford County utilizes with all of our recoverable materials.
The single stream method works.

nextdoor

- Home
- Discover
- For Sale & Free
- Notifications 15
- Messages
- Neighbors

+ Post

recycling

Karen A.
Nelson Downs • 4 Aug •

Lesia
Doesn't help that they've closed the recycling bins in the convenience centers!
I've been an avid recycler for YEARS! The last time I went to deposit my recycling I & MANY OTHER vehicles had to sit in traffic ON the two lane road because the bins are closed & ALL trash goes into the same bin! I was flabbergasted!

As I quite hesitantly dumped my recycling into one single bin I was told It is going to Nashville & they have a facility that separates it. GARBAGE!
First of all... EVERYTHING & I mean EVERYTHING, not just recycling was completely crushed, before my very eyes...there's no separating that!
Second... Nashville has been sending THEIR trash to our already struggling dump that was closing "years ago"
Now all of a sudden they're taking our garbage to separate it
We need to follow THAT $$$.
Now... there's NO incentive to even bother separating recyclables.
THAT is not PROGRESSIVE... if anything it's Commiefornia BS!
Have you not noticed how much garbage is accumulating on the sides of roads lately too?

Maria Ramirez
Nelson Downs • 18 Jul

Has anyone else gotten this in their mailbox? Mine came yesterday. There are so many other places they can put this instead of right next
See more...

+1 5 Like 7 Comments Share

Tracy McPherson • Bradyville Pike • 17w
It has been proven recycling isn't cost effective.
Like Reply Share

Lesia Mitchell • Savannah Ridge-Steven Bend • 17w
The recycling companies have made rules that make it not worth sending them anything. I got that from the guys that work at the dump. I know we have to do something about the trash. I know everything I've heard or read has been frustrating for everybody, government and the public. What do we do with it? I definitely don't have any answers.
Like Reply Share +1 2

Ernest Schmidt • Compton • 17w
California recycles properly.
Like Reply Share 5

Carissa Bauman • Lytle Creek Estates / Creekside Estates • 17w
Ernest as someone who's originally from the west coast, I can 1000% confirm. The west coasts recycling programs are great. A lot of cities don't allow plastic bags or straws, focus on compostable single use and have a solid public transportation systems. We obviously didn't expect all of that here, but we were hopeful our recycling that we pre sort would actually be recycled at the centers.
Like Reply Share 2

See 2 more replies

Amanda Seely • Lytle Creek Estates / Creekside Estates • 17w
At our convenience center, the trash goes into one bin and the recycling (paper, plastic, small metal like cans, and cardboard)goes into another bin that goes to Nashville for sorting according to the lady at the center. The glass still goes into another bin.
Like Reply Share

Add a comment...

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recycling

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- Discover
- For Sale & Free
- Notifications 15
- Messages
- Neighbors

+ Post

Ernest Schmidt
Compton • 6 Sep •

So disappointed to find out that Rutherford County is no longer recycling. Apparently all products are being collected in one container and then treated as trash. The City of Murfreesboro still has a recycle center that is recycling and requiring separating material.

10 Like 66 Comments Share

Rhonda M. • Ravenwood • 12w

That's simply not true. I frequently take my recyclables to Haley Road & they have an employee there monitoring what goes into the bin so only the items that are recyclable get into the container

Like Reply Share 11

Angie Byerline • Rivertrace • 12w

Rhonda Question. I'm thinking about doing this instead of paying for a service. Do they want stuff in bags or NOT in bags?

Like Reply Share 9

See 7 more replies

Julie Bodine • Spring Lake/Cherrywood • Edited 12w

thats not true. I was just there yesterday. The one on South church.
all the recyclable materials are all now going in one bin. I've been told that is how the new company wants it done.
My theory is that it can be more easily monitored for contamination when it goes in one bin. there is always an attendant watching now whereas before people just dumped all kinds of things in the multiple recycling bins. (edited)

Like Reply Share 7

Jay Phillip B. • Halls Hill • 12w

This is not correct. I asked them about it last time I was there and they have a new processing company that uses a laser-based technology that is able to sort the items.

Like Reply Share 7

Diane Cox • Bradyville/Gateway • 12w

Jay I know technology has come a long way, but very hard to believe it will really be separated after crushed all together.

Like Reply Share 14

Steel & aluminum cans,
Plastics 1 & 2
Broken down cardboard
Mixed paper