Identifying Special Needs Populations in Hazard Zones: How to Use Tapestry™ Segmentation for Disaster Evacuation Planning

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An Esri White Paper

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Introduction

This document provides an overview of a geodemographic study that was conducted to help fire departments in Central Virginia better understand the psycho-social dynamics impacting evacuation efforts among special needs populations during an emergency evacuation. The purpose of the study was to determine the applicability of traditional marketing techniques to support the planning efforts of emergency services personnel. In this particular study, the goal was to support planning efforts to prepare and mitigate the need for assistance for special needs populations during an emergency evacuation. The study produced valuable insights that will help emergency personnel understand and communicate with these important members of our communities. This report summarizes the results of these findings and provides recommendations for advancing the methodology for more widespread access to the techniques described. The tools used to develop the analysis include Esri® Business Analyst™ desktop software and Esri's Tapestry™ Segmentation, Updated Demographics, Consumer Spending, and Market Potential data.

The mission of any fire department is to save lives and protect property. To provide adequate protection during catastrophic events, a fire department staff must have a thorough knowledge of the types of people who live in its community and understand how to contact and communicate quickly and effectively with special needs population groups. These groups could be seniors older than age 65, children younger than age 5, anyone who is language isolated, culturally diverse populations, and low-income people with few resources.

The analysis performed for this study includes information from Esri's proprietary Tapestry Segmentation system. Tapestry Segmentation classifies every US residential neighborhood into 65 distinctive segments based on socioeconomic and demographic characteristics. The analysis provides additional insights into US residential neighborhoods. This information will help fire department staffs answer basic questions about the populations in their districts, such as

- *Who* are my types of residents?
- *Where* do they live?
- *How* do I reach them?

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■ *What* messaging will be most effective?

This new perspective of a community's residents will also enable fire department personnel to

■ Recognize different lifestyle characteristics among resident segments.

■ Understand the demographic and behavioral characteristics of special needs populations.

■ Identify the neighborhoods where they live.

■ Discover population groups that might be overlooked.

■ Develop effective communication strategies for these groups.

Fire department staff members can use this information to better understand the types of people in their neighborhoods, communicate appropriate and timely messaging more effectively with different population groups, and expand capabilities needed to help residents who will require additional services or support during a crisis. The analysis includes

■ Interpretation of the reports, maps, and the population base used in the analysis

■ Selection, identification, and definition of core and developmental Tapestry segments

■ Selection of appropriate market potential data categories

■ Creation of action plans based on the report information

The more information a fire department staff has about its residents, the better it can serve them; communicate with them; and, quite possibly, save them.

Profile of the Central Virginia Region

The Central Virginia region is located due south of Washington, D.C., and includes the City of Richmond, the Norfolk-Virginia Beach metropolitan area (Tidewater) in the east, and the City of Charlottesville in the west.

Richmond Fire Department

The Richmond Department of Fire and Emergency Services is the only US fire department that operates under the Total Quint Concept. This plan enables the Richmond Department of Fire and Emergency Services to operate all 20 fire stations with fewer personnel using resources and apparatus more effectively and efficiently. The Total Quint Concept integrates state-of-the-art firefighting equipment with extensive personnel training, creative resource deployment, and fiscal management. The department plans, prepares for, and mitigates emergencies; educates the public on preparedness; coordinates and supports emergency response and recovery; collects and disseminates critical information; and seeks and obtains funding and other aid to support the overall preparedness of the City of Richmond.

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Virginia Beach Fire Department

The Virginia Beach Fire Department is a customer service organization that partners with communities, members, residents, and visitors to foster an atmosphere of safety anywhere, anytime, through planning, mitigation, response, and restoration. The City of Virginia Beach operates 19 fire stations, 12 of which share facilities with rescue squads. Community services such as safety seat inspections, blood pressure checks, and station tours are provided daily to residents and visitors. The Marine Operations Team responds to emergency operations involving fires on vessels, fires along the shoreline, emergency medical services (EMS) calls about swimmers or boaters in distress, vessels in distress (e.g., boats taking on water), and hazardous materials response. This specialized team maintains and operates a 21-foot vessel around the City of Virginia Beach and can respond as requested within the port of Hampton Roads.

Charlottesville Fire Department

Since 1856, the Charlottesville Fire Department has served the City of Charlottesville, the County of Albemarle, and the educational community at the University of Virginia. The Charlottesville Fire Department is composed of 94 career personnel supported by 20 active volunteers. Services include fire suppression, basic and advanced life support, technical hazardous materials response, and operational rescue services. A relatively small department with very large responsibilities, the Charlottesville Fire Department acts as the primary responder to a diverse array of residential, commercial, and other special properties. In the foothills of the Blue Ridge Mountains, the City of Charlottesville is very densely populated, with 4,000 people per square mile. It encompasses 10.4 square miles and has a population of approximately 45,000 residents with an additional 20,000 students living at the University of Virginia during the school year.

Large numbers of northeastern retirees are moving into the Central Virginia region, where they can enjoy relatively warm winters and mild weather not far from family members who live farther north. Groups of retired persons are now making their homes in this region, some in senior communities familiar to the locals; others are purchasing or renting homes in the area. Because they are still self-sufficient, these seniors are not well known to the emergency medical technicians (EMTs), police, and firefighters. However, during a crisis, they may be the most difficult to identify and ultimately require the most emergency resources.

The Challenge

In a hurricane, the entire Central Virginia area could be severely impacted. During the evacuation period before the storm, populations in the Tidewater area would have to move west to Richmond; some might travel on to Charlottesville. A geographic information system (GIS) could provide a significant benefit to the region by enabling emergency planners to calculate the total impact of a potential disaster, plan what-if scenarios, and determine alternative ways to save lives and property. And, how could this information help area emergency personnel assist special needs populations more effectively during such an emergency?

Evacuation planning requires readiness for three phases of an evacuation:

1. Before the Emergency
   - Define evacuation routes and timing.
   - Send preparatory messages to impacted populations.

2. During the Evacuation
   - Set up roadway management: fuel stops, food for travelers, first-aid and medical stations, and accommodations for pets and vehicle breakdowns.

3. After the Evacuation
   - Provide shelter, water, food, and medical care to returning populations.

Fire chiefs in the Central Virginia region already know a great deal about their cities. However, they thought they could learn more, so they challenged Esri to use GIS tools and information to

- Tell them something they didn't know about their communities in order to better understand them.

- Help them communicate effectively with citizens and each other before, during, and after an evacuation.

Esri looked for tools that would help the fire chiefs achieve these goals. Could traditional commercial marketing methodologies provide emergency responders with useful information tools to help them protect their communities?

The Methodology

Analyzing Special Needs Populations

To achieve the fire chiefs' goals of better understanding and communicating with special needs populations in their communities, Esri suggested that a profile study of these populations be performed. The National Response Framework (NRF) definition provides a function-based approach for special needs that addresses a broad set of common function-based needs irrespective of specific diagnoses, statuses, or labels (e.g., children, the elderly, those lacking transportation).

The NRF defines special needs populations as *populations whose members may have additional needs before, during, and after an incident in functional areas, including but not limited to:*

- *Maintaining Independence*
- *Communication*
- *Transportation*
- *Supervision*
- *Medical*

Individuals in need of additional response assistance may include those who have disabilities; who live in institutionalized settings; who are elderly; who are children; who are from diverse cultures; who have limited English proficiency; or who are non-English speaking; or who are transportation disadvantaged.

(**Note:** For more information about this definition of "special needs populations" from CPG-301: Interim Emergency Management Planning Guide for Special Needs Populations, Version 1.0, August 15, 2008, please see Appendix A.)

This study employs a "common language" that describes special needs populations located throughout the region. This language provides an easily understood and consistent way to identify the characteristics and locations of special needs populations and their property. The output of this study is called a Tapestry Segmentation analysis.

To begin the analysis, the City of Virginia Beach Fire Department provided Esri with a file of residential structure addresses and a file defining the flood hazard zones. In technical terms, these areas are called surge zones. To perform the Tapestry Segmentation analysis, Esri then appended each address record with location information, enabling the file to be used for the demographic assessment. The description of the workflow process, along with the reports and maps used in this study, is included in Appendix B.

The next section of this methodology provides information about the general concept of segmentation, the Tapestry Segmentation system, and how Tapestry Segmentation was used in this study to identify the special needs populations in these areas.

Applying Traditional Marketing Techniques to Solve Public Safety Challenges

The Concept of Segmentation

For the past 30 years, companies, agencies, and organizations have used segmentation to divide and group areas to more precisely identify only their target customers, prospects, residents, donors, or students. The goal of segmentation is to define a set of distinctively different segments within the total population while ensuring that the neighborhoods assigned to each segment are as similar as possible.

Segmentation systems operate on the theory that people with similar tastes, lifestyles, and behaviors seek others with the same tastes—"like seeks like." These behaviors can be measured, predicted, and targeted. Benefits of segmentation can be clearly defined by those who need accurate information about their consumers, residents, donors, students, or members. The next section describes Esri's Tapestry Segmentation system.

Esri's Tapestry Segmentation System

Tapestry Segmentation combines the *who* of lifestyle demography with the *what* of lifestyle characteristics and the *where* of local neighborhood geography to create a model of various lifestyle classifications, or segments of actual neighborhoods with addresses— distinct behavioral market segments. The *who* identifies the core demographic characteristics of a neighborhood such as age, income, marital status, family type, race, gender, homeownership, and more. The *what* adds information about residents' attitudes and values, product preferences, and media habits. The *where* provides the additional influence of a geographic location, such as urban or rural, that can play a prominent role in behaviors.

The 65-segment Tapestry system classifies US residential neighborhoods based on their socioeconomic and demographic composition. Tapestry Segmentation codes are assigned by postal geographic levels to ZIP Codes and ZIP+4s and by census geographies at the census tract and block group levels. For a broader view of US neighborhoods, Tapestry Segmentation divides the 65 segments into summary groups:

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- *LifeMode:* Twelve summary groups based on lifestyle and lifestage

- *Urbanization:* Eleven summary groups based on geographic and physical features and income

"Although the demographic landscape of the United States has changed significantly in some areas since Census 2000, review and updates to the segmentation system further confirm the stability of Tapestry Segmentation as some neighborhoods have evolved and moved into other segments," said Lynn Wombold, chief demographer and manager, data development, Esri. "Tapestry Segmentation stands as a solid affirmation of the proven segmentation methodology that has been developed and enhanced by proven usage in commercial markets for more than 25 years."

The Project Esri appended demographic and Tapestry Segmentation codes to residential structure address records supplied by the City of Virginia Beach Fire Department. Based on these data appends, Esri created reports and maps specifically for the Virginia Beach, Virginia, community, then analyzed the data to provide practical conclusions and recommendations that met the fire chiefs' previously stated goals. This detailed information can enable fire departments to better understand the community's special needs populations, their locations, and the challenges involved in moving them safely and swiftly and to provide messaging that will clearly communicate evacuation issues and plans. This messaging must reach the right audiences in the right time frame and generate maximum responses before, during, and after the evacuation process. The full reports, maps, and analyses developed for the project are provided in Appendix C.

Findings 1. Identify the special populations in the surge zone.

The Tapestry Segmentation Profile report automatically generates a ranked list of Tapestry segments. This first, broad brush stroke analysis identified the top 10 neighborhoods in the surge zone as

- #13 *In Style:* Affluent residents of metropolitan neighborhoods

- #07 *Exurbanites:* Affluent empty nesters in open spaces

- #28 *Aspiring Young Families:* Young, married-couple families/single parents in growing metropolitan areas (MAs)

- #18 *Cozy and Comfortable:* Settled, married, and still-working suburbanites

- #19 *Milk and Cookies:* Young, affluent, married-couple families

- #15 *Silver and Gold:* Wealthy, older seniors

- #12 *Up and Coming Families:* Young, affluent families with young children

- #03 *Connoisseurs:* Well-educated, wealthy, conspicuous consumers

■ #39 *Young and Restless:* Young, on-the-go renters

■ #09 *Urban Chic:* Well-educated residents living an urban, exclusive lifestyle

Detailed descriptions of these Tapestry segments are found in Appendix D.

The fire chiefs wanted Esri to help identify the special needs populations that would benefit from evacuation preparation initiatives. The fire chiefs thought the most vulnerable populations would be the elderly, the very young, the indigent, and anyone in fragile health. The fire chiefs also wanted to find population groups that might not be physically fit and those with mobility issues. Building on the disaster-planning lessons learned from Hurricanes Katrina, Rita, and Wilma, Esri was asked to help locate people who owned pets and wouldn't evacuate without them. The fire chiefs noted that the Federal Emergency Management Agency (FEMA) now mandates that pets be cared for during an evacuation.

From the initial analysis of surge zone neighborhoods, the Esri analysis team went to work to identify neighborhoods with high concentrations of these special needs residents and learn more about what their needs might be and how to best communicate with them before, during, and after a disaster. Based on criteria provided by the fire chiefs, seniors in the dominant Tapestry Segmentation *Silver and Gold* segment in the surge zone were considered the most at risk. Although this segment ranked sixth in the Tapestry Profile list, Esri designated this segment to be the core segment, based on the special needs population criteria. In addition to the core *Silver and Gold* Tapestry segment, five additional concentrated population segments were identified as high priority for the study because of their larger household size and the presence of children. These developmental segments are #13: *In Style,* #07: *Exurbanites,* #28: *Aspiring Young Families,* #18: *Cozy and Comfortable,* and #19: *Milk and Cookies*. The concentrations of these target groups were then displayed on maps to help uncover the geographic distribution of these residents in the surge zone.

2. Learn more about the kinds of special assistance these residents might require and understand how to design outreach programs for mitigating the needs and delivering the services.

Once these segments of the population were identified as the priority population groups to focus on for the study, the team turned its attention to providing answers to the questions the fire chiefs had asked about their communities. The chiefs wanted to better understand how they could help and reach out to these special needs members of their communities. The Esri team of analysts accomplished this by selecting a specific set of variables as defined by the fire chiefs and conducting an in-depth analysis of how these variables would impact the special needs of the priority segments of the population before, during, and after an evacuation scenario. These factors included access to reliable transportation, health and medical issues, and the impact of activities and lifestyle preferences. Below are some brief highlights of the summary findings from the report.

Impact of Variables

Automobiles

The fire chiefs wanted to understand what types of vehicles would likely be driven when an evacuation notice is given. This information provides insight into the ability of the neighborhood residents to have reliable vehicles for evacuation use. Because the lifestyle index for the core (*Silver and Gold*) segment is well over 100, the fire chiefs now know that these neighborhoods will have little or no difficulty with reliable vehicles during an evacuation.

Health Behaviors

The core index for the *Silver and Gold* Tapestry segment reports a population that has mobility limitations and may need assistance in preparing their medications prior to evacuating.

Pets

Because the populace in the surge zone averages slightly higher than the US average for owning a pet, this issue must be considered during an evacuation. Not only are they "pet people," they also dote on their pets. Guess what? Mom and dad won't leave home without 'em! Alert veterinarians in new areas.

Leisure Activities

Knowing what these residents enjoy doing in their leisure time will enable community staffs to provide appropriate activities that might make the relocations during an evacuation less traumatic. All areas rank high for business club memberships—this information tells the fire chiefs that by attending a club meeting, they will reach "joiners" who will be receptive to prevention messages. After an evacuation, these folks will be likely to join similar clubs in their new community; providing information to the new community may include visits to clubs before the onslaught of new residents.

Developing Communication Strategies

Communicating Effectively with Messaging to Residents

The fire chiefs now know that their core (*Silver and Gold*) residents are avid golf fans, might have mobility limitations, and take prescription medications. In addition, residents of *Silver and Gold* neighborhoods will be very concerned about their pets in a time of crisis. This information enables the prevention team to create messages that residents of *Silver and Gold* neighborhoods would probably notice and follow.

Specific recommendations were provided to reach these audiences with media campaigns targeted at appropriate messages and media venues, including an in-depth assessment of specific radio, newspaper, direct mail, and television media that would reach these audiences most effectively. In addition, it was recommended that a county-level community services department be responsible for community events, governmental and legislative affairs, mass media public safety campaigns, news media relations, and public education. This staff would greatly appreciate having access to information about the Tapestry Segmentation special needs residents to help them create the right messages to reach these neighborhoods.

Relocation Planning

Tapestry Segmentation information about the residents can also be used for site location analysis. For example, map a potential relocation area to see the special needs population segments and areas with an expected high number of residents. If you include this information in the evacuation plan, relocating people from these similar neighborhoods into new areas may be less disruptive for them.

When you evaluate relocation sites, consider factors such as the proximity to health care facilities, grocery stores, and government agencies, and the presence of the special needs population segments. Using these criteria, you can preview new relocation sites and select those that most closely match the residents' requirements.

Recovery

Throughout the recovery process, issues such as relocation will continue to surface. Methodologies similar to those applied in this pilot evacuation study can be used to better understand the unique requirements of special needs populations in our communities.

Conclusion

The Tapestry Segmentation Study of the special needs populations in the Virginia Beach surge zones proved to be an effective method for obtaining invaluable information about the special needs of residents in these communities. This study confirmed the theory that traditional marketing methodologies can be applied effectively to produce important findings to enhance the safety of all residents in our communities.

A follow-up focus group meeting was conducted at the International Association of Fire Chiefs in summer 2007 to share the findings of this study and explore the potential for developing tools to enable more widespread use of these methodologies and make them more readily available to fire department planners. Consensus opinion affirmed the importance of this work, resulting in the formation of a technology advisory council to advise and advance such programs.

Appendix A: Defining Special Needs

Emergency management takes into consideration planning for the safety of every person in the community before, during, and after a disaster. Taking into consideration populations historically considered vulnerable, at risk, or special needs ultimately improves the overall community's postdisaster sustainability.

Before drafting emergency plans, it is recommended that a statewide definition for the term *special needs* be developed and used to guide state, territorial, tribal, and local jurisdictions in the planning process. A consistent use of terminology will result in improved communication and coordination of resources across state, territorial, tribal, and local entities.

The NRF definition for special needs provides a function-based approach for planning and seeks to establish a flexible framework that addresses a broad set of common function-based needs irrespective of specific diagnosis, status, or label (e.g., children, the elderly, the disadvantaged, and those lacking transportation).[*]

In other words, this function-based definition reflects the capabilities of the individual, not the condition or label. Governments that choose to align their language to the NRF definition will improve intergovernment communication during an incident. The definition of special needs populations as it appears in the NRF is as follows:

Populations whose members may have additional needs before, during, and after an incident in functional areas, including but not limited to the following:

- *Maintaining Independence*
- *Communication*
- *Transportation*
- *Supervision*
- *Medical Care*

Individuals in need of additional response assistance may include those who have disabilities; who live in institutionalized settings; who are elderly; who are children; who are from diverse cultures; who have limited English proficiency; or who are non-English speaking; or who are transportation disadvantaged.

At first glance, it may appear that each of the above groups (and a disproportionately large percentage of the population) is automatically classified as having special needs, but this is not the case. The definition indicates that these groups *may* often include individuals who have special needs and, in the event of an emergency, may need additional assistance or specialized resources. For example, in a city like New York, where less than half of all households own a car, transportation dependence is not

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[*] The concept of a function-based approach to defining special needs populations has been developed by June Isaacson Kailes. See Kailes, J., and A. Enders, "Moving Beyond Special Needs, a Function-Based Framework for Emergency Management Planning," *Journal of Disability Policy Studies,* Vol. 44, 2007, pp. 230–237.

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necessarily a special need. A special need in this instance is the inability to access the transportation alternatives defined by the Emergency Operations Plan (EOP). It is important to remember that special needs populations have needs that extend beyond those of the general population.

The definition focuses on the following function-based aspects:

- **Maintaining Independence**—Individuals requiring support to be independent in daily activities may lose this support during an emergency or a disaster. Such support may include consumable medical supplies (diapers, bandages, ostomy supplies, etc.), durable medical equipment (wheelchairs, walkers, scooters, etc.), service animals, and/or attendants or caregivers. Supplying needed support to these individuals will enable them to maintain their predisaster level of independence.

- **Communication**—Individuals who have limitations that interfere with the receipt of and response to information will need that information provided in methods they can understand and use. They may not be able to hear verbal announcements, see directional signs, or understand how to get assistance due to hearing, visual, speech, cognitive, or intellectual limitations and/or limited English proficiency.

- **Transportation**—Individuals who cannot drive or who do not have a vehicle may require transportation support for successful evacuation. This support may include accessible vehicles (e.g., lift-equipped conveyances or vehicles suitable for transporting individuals who use oxygen) or information about how and where to access mass transportation during an evacuation.

- **Supervision**—Before, during, and after an emergency, individuals may lose the support of caregivers, family, or friends or may be unable to cope in a new environment (particularly if they have dementia, Alzheimer's, or psychiatric conditions such as schizophrenia or intense anxiety). If separated from their caregivers, young children may be unable to identify themselves; also, when in danger, they may lack the cognitive ability to assess the situation and react appropriately.

- **Medical Care**—Individuals who are not self-sufficient or who do not have adequate support from caregivers, family, or friends may need assistance with managing unstable, terminal, or contagious conditions that require observation and ongoing treatment; managing intravenous therapy, tube feeding, and vital signs; receiving dialysis, oxygen, and suction administration; managing wounds; and operating power-dependent equipment to sustain life. These individuals require support from trained medical professionals.

The above examples illustrate function-based needs that may exist within the community.[*]

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[*] This information was taken from the *Comprehensive Preparedness Guide (CPG) 301: Interim Emergency Management Planning Guide for Special Needs Populations,* Federal Emergency Management Agency and DHS Office for Civil Rights and Civil Liberties, Version 1.0, August 15, 2008, Section III. "Defining Special Needs," pp. 4–6.

Appendix B: The Analysis Workflow Process and Diagram

Step One: Structure Address Records

These records are stored in files. For this example, each residential structure data record should consist of a name, complete street address, city, state, and ZIP Code™. Post office boxes identify the location of a person's *local post office,* not a person's *physical residence*. The example below shows a resident's basic address record. This data does not provide any information about the person except that he's a male and lives on Main Street in Anytown, CA.

Name	Address	City	ST	ZIP Code
Joe Smith	123 Main St.	Anytown	CA	99999-9999

Step Two: Geocoding

This is the process of enhancing address information with more detail by assigning a geographic code such as a latitude-longitude coordinate to each address record. Geographic codes that can be assigned include state, county, census tract, enumeration district, block group, and block. These are geographic boundaries used by governments in all state, county, and federal surveys, analyses, and evaluations. Esri's geocoding software uses a hierarchical methodology to assign latitude and longitude coordinates and a census geographic code, such as a block, to an address record. A block is a 15-digit code that represents an area the size of a city block. However, in more rural areas, this geographic area may be larger. The block is the smallest level of geography for which the Census Bureau tabulates data collected during a decennial census. When the census geocode is added, the address record looks like this:

Name	Address	City	ST	ZIP Code	Latitude	Longitude	Census Geocode
Joe Smith	123 Main St.	Anytown	CA	99999-9999	32.87090	-117.23261	060730083151000
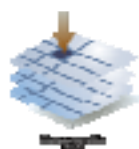
Step Three: Demographic Data

After the residents' records have been geocoded with latitude, longitude, and census geography codes, demographic and segmentation data can be added to reveal even more information about *who* these people are based on the profiles of their neighborhoods. Esri's demographic data variables, such as age, income, housing type, gender, race, and family type, help to more fully describe the types of people who live in an area.

Step Four: Tapestry Segmentation

For an additional perspective about the types of people in an area, a Tapestry Segmentation code is appended to each address record. Esri's segmentation system, Tapestry Segmentation, combines the *who* of lifestyle demography with the *where* of local neighborhood geography to create a model of various lifestyle classifications, or segments, of actual neighborhoods divided into distinct behavioral market segments. This example shows the addition of the Tapestry Segmentation code to the address record.

Name	Address	City	ST	ZIP Code	Latitude	Longitude	Census Geocode	Tapestry
Joe Smith	123 Main St	Anytown	CA	99999-9999	32.87090	-117.23261	060730083151000	08

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Step Five: Population Segmentation

A Tapestry Segmentation code is appended to each resident's record. Now, the records have latitude, longitude, and Tapestry Segmentation codes. The addition of this data provides valuable information about the types of residents who live in an area. As you can see in the example below, adding demographic data such as current year population (POP_CY) and the total number of households (HH_CY) provides information that analysts can use to learn more about residents and their neighborhoods. This additional data shows that there are 1,348 people who live in 752 households in the area.

Name	Address	City	ST	ZIP Code	Latitude	Longitude	Census Geocode	Tapestry	POP_CY	HH_CY
Joe Smith	123 Main St.	Anytown	CA	99999-9999	32.87090	-117.23261	060730083151000	08	1,348	752

Step Six: Market Potential Data

Esri's Market Potential data is the *potential* (probability) that a product or service will be purchased and used by consumers in a market. Adding Esri's Market Potential data to the demographic and socioeconomic data in Tapestry Segmentation provides insight into consumer behaviors and the product, service, and media preferences of residents in each segment. This data can be used to learn about what they might buy, read, listen to, and watch and about messaging that would most likely provide the best responses. Understanding this information would enable the fire chiefs to communicate more effectively with the residents of each segment.

Step Seven: Demographic and Socioeconomic Characteristics

After resident records have been appended with geographic, Tapestry Segmentation, and demographic data codes, they can be divided according to the demographic and socioeconomic characteristics in each segment. Business Analyst Desktop (Premium) analyzes the Tapestry Profile of the residents and generates core and developmental segment groups for further analysis. Analysts can now use this information to study the different types of residents in an area.

Step Eight: Consolidating Data

This comprehensive information about the residents can be compiled into charts, reports, and maps. Analysts can collate this information into a booklet that can be easily distributed to everyone who requires detailed information about an area's residents.

Step Nine: Applying Data

After the records are appended and reports have been developed, analysts can study the information and reach conclusions about the best methods to prepare plans, communicate the right messages, and move all residents from the evacuation area quickly and safely.

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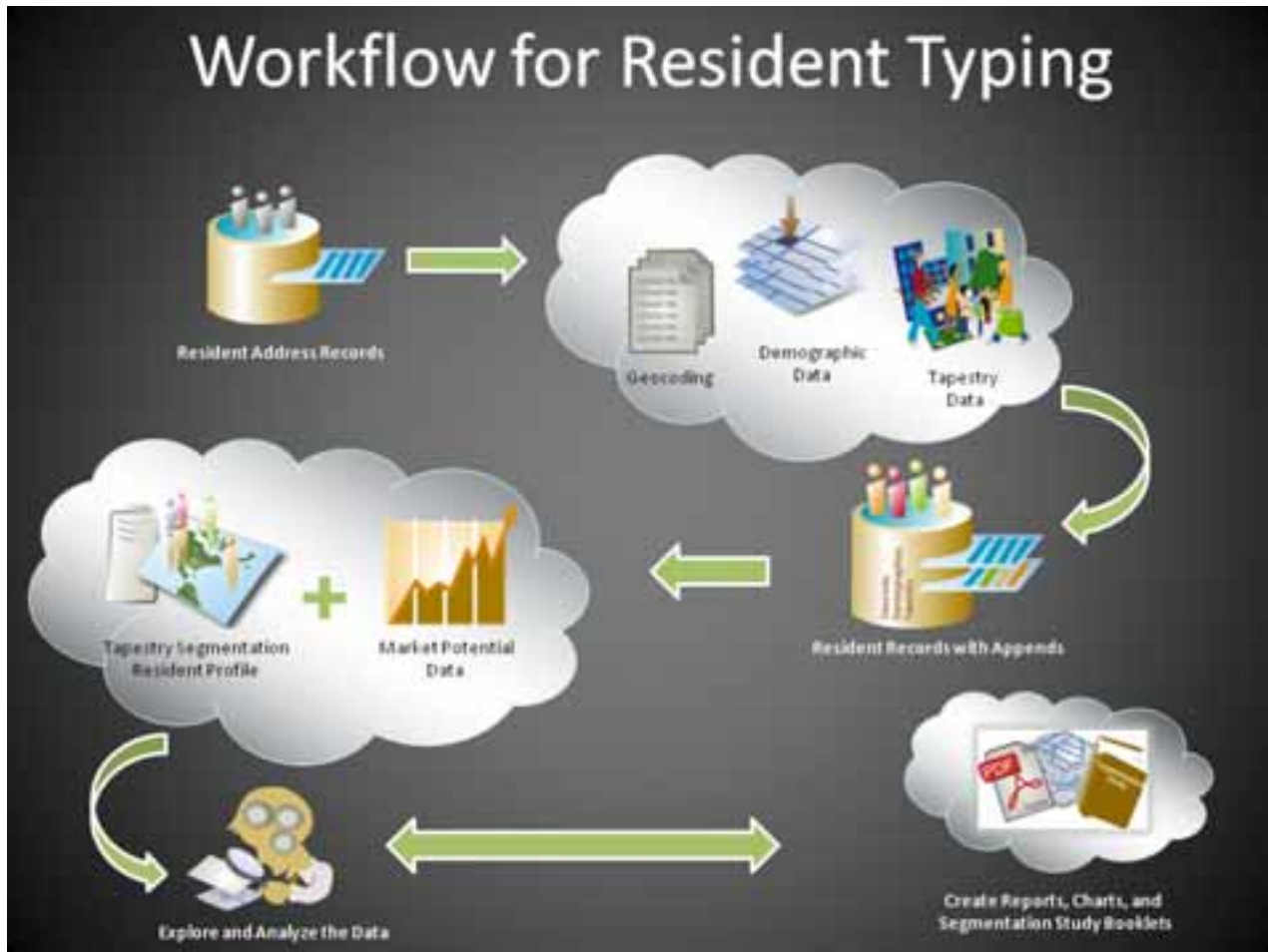
This graphic shows the steps of a workflow analysis as described on the previous pages.

Appendix C: Materials Created for the Analysis

Match & Geocode Summary Report

File: **My Residents**
Residential Address Records from Virginia Beach Fire Department
Number of Records: **4,109**

The Match Code (Table 1) indicates the level of accuracy of the latitude and longitude coordinates appended to each input address record. Esri assigns your records to several match levels. The best match level is to the Address Point. This indicates a match to the TomTom rooftop data. The centroid is accurate to the rooftop level. A match to the Street Address indicates a centroid that is accurate to the street segment. A match to the ZIP+4 indicates a centroid accurate to the ZIP+4 centroid. A match to the ZIP+2 indicates a centroid accurate to the ZIP+2 centroid. A match to the ZIP Code indicates a centroid accurate to the 5-digit ZIP Code centroid. A match to the City and State indicates a centroid accurate to the City and State centroid.

Table 1
Match & Geocode Summary Report

Match Description	Match Code	Number	Percentage
Address Point	MA	609	15%
Street Address	MS	3,006	73%
ZIP+4	M4	0	0%
ZIP+2	M2	0	0%
ZIP Code	MZ	494	12%
City and State	MC	0	0%
No Match	UX	0	0%
Total		4,109	**100%**

The geocode indicates the level of accuracy of the geographic code assigned to each input address record. Esri assigns your records to one of three geocode levels listed below. For records where a block, block group, or tract cannot be assigned, Esri assigns a census tract through a ZIP Code to census tract correspondence. The census tract with the largest household count in the ZIP Code is appended to the record. If only one tract exists in the ZIP Code, then that tract is assigned.

Census tracts are assigned to residential ZIP Codes by overlaying the centroids of the component blocks on ZIP Code boundaries. Expressed as latitude-longitude coordinates, centroids approximate the geographic centers of blocks. If the centroid of a block falls within the ZIP Code, it is included. Blocks are then aggregated, and the ratio of the block totals to tracts is used to create the ZIP Code to census tract correspondence.

If an address is assigned a No Geocode, no match was possible at the city level or below. Post office boxes, rural routes or drops, or incomplete addresses can preclude the assignment of a geocode or latitude-longitude coordinates. Addresses outside the United States cannot be matched.

Understanding the Information in the Match & Geocode Summary Report

Note: The Match & Geocode Summary report is also described in steps one and two in the workflow.

Using address information from the Virginia Beach surge zone file, Esri geocoded (assigned geographic codes to) the records and created a Match & Geocode Summary report. This report assigns residents' records to one of five match levels:

- Address Point
- Street Address Range
- ZIP Code
- City and State
- No Geocode

Based on the geographic code assigned to each resident's address record, a Tapestry Segmentation code was appended to each record.

The *Address Point* match level is the most accurate match type, and indicates that the geocode is accurate at the address number. The next match type, *Street Address Range,* indicates that the record can be matched to its street location. If a record cannot be matched to the Address Point or Street Address Range, the next best match is the 5-digit *ZIP Code*. If a record cannot be matched to Address Point, Street Address Range, or ZIP Code, it is matched to the *City and State*. If an address received a *No Geocode* designation, no match was possible below the county geographic level. Post office boxes, rural routes, rural drops, non-US addresses, or incomplete addresses cannot be matched.

The Match Description column defines each match level category. The Match Code column designates the abbreviation for each category. This match code will also be appended to each record on the resident file and is provided as part of this analysis. The Number column shows the number of records in each category and the total number of records in the resident output file. The Percent column shows the percentage of resident records for each match level category. Now you know how many of the resident records are in each match level category.

Report Summary

A total of **4,109** resident records for the Virginia Beach surge zone were in the *My Residents* file. Of those, **3,006** records (73%) matched at the **Street Address Range, 609** records (14%, rounded up to 15%) matched at the **Address Point** level, **494** records (12%) matched in the **ZIP Code** range, **0** records (0%) matched in the **City and State** range, and **0** records (0%) could not be matched and were assigned to the **No Geocode** category. Of the total 4,109 resident records, fewer than 80 percent were assigned a geocode at the Address Point or Street Address Range level. This is a below-average match rate. The accuracy of the profile depends on the number of resident records that can be assigned to the address or street level. Cleaning and re-geocoding the resident database may increase the accuracy of subsequent analyses.

Note: Accuracy depends on the quality of the file that is processed.

Map of Resident
Locations in the
Surge Zone

After resident records are appended with a latitude and longitude coordinate, you can visualize the surge zone and resident locations (Figure 1) that will be in the potential flooded area.

Figure 1
Map of Resident Locations in the Surge Zone
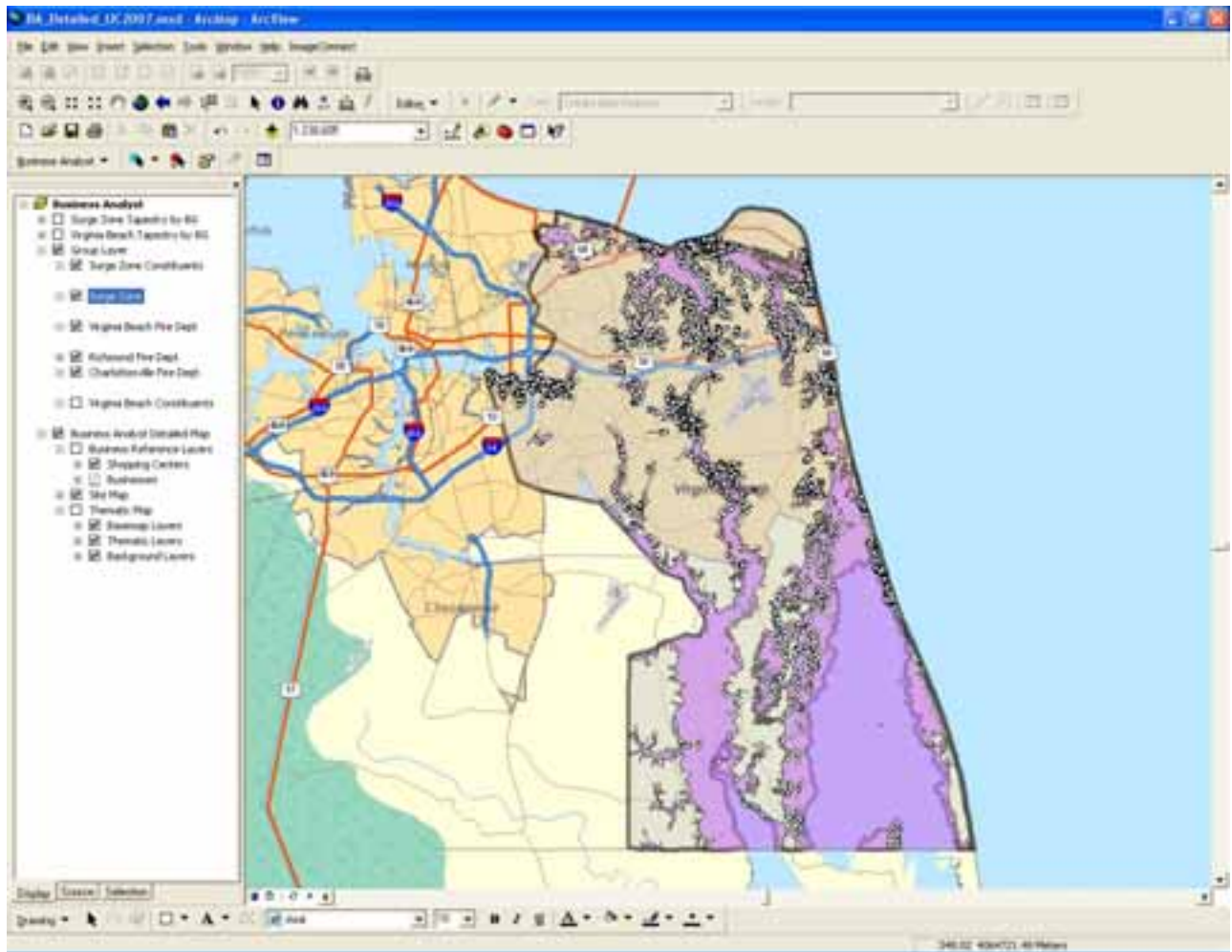
Note the following about this map:

- The purple areas highlight the surge zone.
- The black lines outline the city boundaries of Virginia Beach.
- The black dots identify residents who live in the City of Virginia Beach surge zone.

The next report provides demographic details about the residents who live in the surge zone. After the geocoding of the addresses in the City of Virginia Beach residential structural address file is completed, this file contains only the residents who live in the surge zone.

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**Customer
Geographic
Summary Report**

File: File Name
<DESCRIPTION>
Number of Records: 11,545

Top 20 States	Record Count	Percentage	Top 20 ZIP Codes	Record Count	Percentage
Virginia (51)	11,545	99.950%	23451 Virginia Beach, VA	3,981	33.590%
			23452 Virginia Beach, VA	2,157	18,200%
			23456 Virginia Beach, VA	1,255	10.590%
			23454 Virginia Beach, VA	1,100	9.280%
			23453 Virginia Beach, VA	966	8.150%
			23455 Virginia Beach, VA	906	7.640%
			23462 Virginia Beach, VA	576	4.860%
			23464 Virginia Beach, VA	517	4.360%
			23457 Virginia Beach, VA	387	3.270%
			23521 Norfolk, VA	3	0.030%
			23322 Chesapeake, VA	2	0.020%

(A) (D) (B) (E) (C) (F)

| Other States | 0 | 0.000% | Other ZIP Codes | 0 | 0.00% |
| Nongeocoded Records | 6 | 0.050% | Records with no ZIP Code | 1 | 0.010% |

Top 20 Counties			**Top 20 CBSAs**		
City of Virginia Beach, VA (51810)	11,545	99.950%	VA Beach-Norfolk-Newport News	11,811	99.960%
Other Counties	0	0.000%	Other CBSAs	0	0.000%
Nongeocoded Records	5	0.050%	Records not in a CBSA	40	0.340%

Note: The Customer Geographic Summary report displays the top 20 states, counties, ZIP Codes, and metropolitan areas, in rank order.

- 11,545 (99.949%) of the records are in the State of Virginia (51).

- 11,545 (99.949%) of the records are in the City of Virginia Beach, Virginia (51810). This number is the county FIPS Code.

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- Records that were not matched at the designated level are noted at the bottom of the report.

- 23451, Virginia Beach, Virginia, is the top-ranked ZIP Code. 3,981 (33.592%) of the records are in this ZIP Code.

- Other than the top 20 ZIP Codes, no other ZIP Codes (0.000%) are represented in the file.

- 11,811 (99.662%) of the records are located in the Virginia Beach-Norfolk-Newport News, Virginia-North Carolina metropolitan area (47260).

Geographic Resident Summary Report

Understanding Where Residents Live

Knowing about the neighborhoods where the special needs populations live is another important aspect of understanding their requirements before, during, and after an evacuation. It is necessary to learn about local commuting patterns, locations of shopping districts, and other factors that will impact an evacuation. Knowing about the neighborhoods where the residents live enables you to target public service announcement (PSA) messages, such as community service direct mail campaigns to residents in specific geographic areas, instead of mailing one message to the entire city.

You can use the information in this report to identify neighborhoods where most of the current residents live. To find the top 20 geographic areas in Virginia Beach, this report summarizes the resident records at the state, county, ZIP Code, and core-based statistical area (CBSA) geographic levels. Each record is assigned at the state, county, ZIP Code, and CBSA geographic levels according to a point-in-polygon approach based on the record's latitude and longitude. [**Note**: The Locator (LOC_NAME) field in the output file identifies the match levels of the latitude and longitude for every address record.] Each geographic level is analyzed according to the record count and percentages of the match levels. Records that are not matched are noted at the end of each section.

This report lists the percentages of residents who live in each geographic area, ranked high to low, based on results from the geocoding process. This information reveals where you should concentrate community service PSA messaging efforts.

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Tapestry
Segmentation Profile
of Residents

File Name: ***My Residents***
Residential Structure Address Records from Virginia Beach Fire Department
Number of Records: 147,176

Constituents	A			C	D		E
		B →	Surge Zone	Penetration	VA Beach		
Tapestry Description			**Number**	**%**	**Per 100**	**Number**	**%**	**Index**
13 *In Style*			2,402	20.0	31.050	7,735	5.3	381
07 *Exurbanites*			1,225	10.2	10.980	11,159	7.6	135
28 *Aspiring Young Families*			1,149	9.6	5.616	20,458	13.9	69
18 *Cozy and Comfortable*			928	7.7	5.596	16,583	11.3	69
19 *Milk and Cookies*			822	6.9	5.737	14,327	9.7	70
15 *Silver and Gold*			792	6.6	20.270	3,907	2.7	149
12 *Up and Coming Families*			709	5.9	5.455	12,998	8.8	67
03 *Connoisseurs*			610	5.1	12.060	5,057	3.4	148
39 *Young and Restless*			594	5.0	7.994	7,431	5.0	98
09 *Urban Chic*			382	3.2	20.400	1,873	1.3	250
17 *Green Acres*			354	3.0	21.890	1,617	1.1	269
14 *Prosperous Empty Nesters*			333	2.8	5.014	6,641	4.5	61
06 *Sophisticated Squires*			332	2.8	2.016	16,471	11.2	25
22 *Metropolitans*			290	2.4	27.540	1,053	0.7	338
04 *Boomburbs*			250	2.1	4.765	5,247	3.6	58
24 *Main Street USA*			236	2.0	14.390	1,640	1.1	176
01 *Top Rung*			153	1.3	11.500	1,331	0.9	141
02 *Suburban Splendor*			142	1.2	6.358	2,230	1.5	78
27 *Metro Renters*			120	1.0	27.460	437	0.3	337
36 *Old and Newcomers*			100	0.8	2.719	3,678	2.5	33
16 *Enterprising Professionals*			39	0.3	17.110	228	0.2	210
40 *Military Proximity*			21	0.2	5.036	417	0.3	62
52 *Inner City Tenants*			10	0.1	0.244	4,092	2.8	3
48 *Great Expectations*			6	0.1	1.357	442	0.3	17
64 *City Commons*			1	0.0	0.806	124	0.1	10
Total			**12,000**	**100.0**	**147,176**		**100.0**	**100**

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Sample interpretation of the chart:

A. Tapestry Segmentation includes 12 LifeMode Summary Groups (lifestyle/lifestage),
    11 Urbanization Summary Groups (population density and affluence), and
    65 distinctive segments that describe US residential neighborhoods by demographic
    and socioeconomic characteristics.

B. 2,402 residents are classified in Tapestry segment #13 *In Style.* This Tapestry
    segment represents 20.0 percent of the total surge zone residents.

C. The penetration of this segment is 31.050.

D. In the Virginia Beach base area, 5.3 percent, or 7,735 of the base area households,
    are classified in Tapestry segment #13 *In Style.*

E. An index of 381 shows that Tapestry segment #13 *In Style* residents are 3.310 times
    more likely to be in the special needs population than the average household.

*Tapestry
Segmentation Profile
of Residents*

The Resident Tapestry Segmentation Profile report shows the Tapestry segments and
summary groups that most accurately reflect the resident records and compares the
resident profile to the base profile of the study area with Tapestry Segmentation. The
Resident Tapestry Segmentation Profile by *Summary Group* and Resident Tapestry
Segmentation Profile by *Segment* display the count, percentage, and index of each
summary group/segment for the residents' file and the study area.

The Tapestry Segmentation Description provides the name of the Tapestry segment or
summary group. The Resident column notes the actual count of residents in each segment
or summary group and the percentage of residents in the segment or summary group
relative to the total number of resident records. The Penetration per 100 illustrates the
penetration percentage per 100 residents in the segment or summary group.

The last three columns—Number, Percentage, and Index—show the population or
households, the percentage of the total population or households, and the index of each
summary group/segment in the study area. As shown in the report, the population or
household count is established by either the Total Adult Population or the Total
Households when the base profile is created. The index average is 100. An index average
of 100 means that the percentage of residents in the surge zone matches the percentage of
people in Virginia Beach; they fit a specific Tapestry segment at the same percentage
rate. When the Index is higher than 100, the percentage of residents in the surge zone is
higher than the percentage of people in Virginia Beach. Therefore, an index of 216 means
that people or households in the segment are 2.16 times more likely to reside in the surge
zone than people who live in the overall Virginia Beach area. The report is based on the
number of resident records in Virginia Beach that were analyzed for this study.

The Resident Tapestry Segmentation Profile by Segment report is sorted by the
percentage of residents ranked from the highest to the lowest. When residents are sorted
by Tapestry segment percentages, segments of residents are revealed. Therefore, the
information in this report will help identify the residents with special needs.

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Tapestry Segmentation Summary Groups
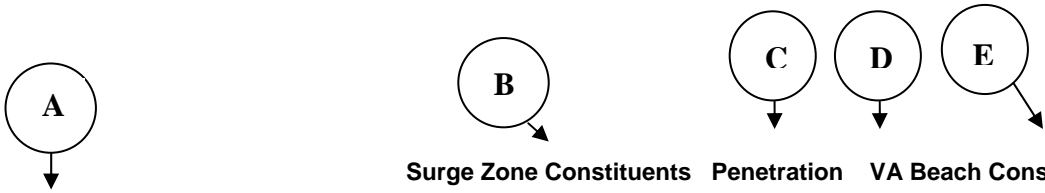
Tapestry Segmentation provides an accurate, detailed description of America's neighborhoods. Tapestry's 65 segments profile the diversity of the American population and provide two ways to summarize and simplify these differences—*LifeMode* summary groups and *Urbanization* summary groups. Segments in a *LifeMode* summary group share an experience such as being born in the same time period or a trait such as affluence. *Urbanization* summary groups share a locale, from the urban canyons of the largest cities to the rural lanes of villages or farms.

■ *LifeMode:* 12 summary groups based on lifestyle and lifestage

■ *Urbanization:* 11 summary groups based on geographic and physical features and income

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**Residents' Profile by
Tapestry Summary
Groups**

File Name: *My Residents*
Residential Structure Address Records from Virginia Beach Fire Department
Number of Records: 147,176

Tapestry LifeMode Summary Groups	Surge Zone Constituents Number	%	Penetration Per 100	VA Beach Constituents Number	%	Index
L2 *Upscale Avenues*	4,105	34.2	14.640	28,036	19.1	180
L1 *High Society*	2,712	22.6	6.536	41,495	28.2	80
L9 *Family Portrait*	1,532	12.8	5.581	27,449	18.7	68
L7 *High Hopes*	1,155	9.6	5.526	20,900	14.2	68
L5 *Senior Styles*	1,125	9.4	10.670	10,548	7.2	131
L4 *Solo Acts*	814	6.8	7.050	11,546	7.8	86
L3 *Metropolis*	290	2.4	27.540	1,053	0.7	338
L10 *Traditional Living*	236	2.0	14.390	1,640	1.1	176
L6 *Scholars and Patriots*	21	0.2	5.036	417	0.3	62
L8 *Global Roots*	10	0.1	0.244	4,092	2.8	3
L11 *Factories and Farms*	0	0.0	0.000	0	0.0	0
L12 *American Quilt*	0	0.0	0.000	0	0.0	0

Surge Zone Constituents Penetration VA Beach Constituents

Tapestry Urbanization Summary Groups	Number	%	Per 100	Number	%	Index
U7 *Suburban Periphery I*	5,935	49.5	9.707	61,141	41.5	119
U3 *Metro Cities I*	2,296	19.1	9.619	23,869	16.2	118
U4 *Metro Cities II*	1,853	15.4	5.196	35,659	24.2	64
U8 *Suburban Periphery II*	949	7.9	5.582	17,000	11.6	68
U5 *Urban Outskirts I*	492	4.1	6.713	7,329	5.0	82
U10 *Rural I*	354	3.0	21.890	1,617	1.1	269
U1 *Principal Urban Centers I*	120	1.0	27.460	437	0.3	337
U2 *Principal Urban Centers II*	1	0.0	0.806	124	0.1	10
U11 *Rural II*	0	0.0	0.000	0	0.0	0
U6 *Urban Outskirts II*	0	0.0	0.000	0	0.0	0
U9 *Small Towns*	0	0.0	0.000	0	0.0	0

Interpretation of the chart: Tapestry Segmentation profiles resident areas from a resident file based on a relative population, such as the United States'.

A. Tapestry Segmentation contains 12 *LifeMode* summary groups that are based on lifestyle/lifestage and 11 *Urbanization* summary groups that are based on population density and affluence.

B. 4,105, or 34.2 percent, of the residents are in the L2 *Upscale Avenues* LifeMode summary group.

C. The penetration rate shows the number of surge zone residents relative to the Virginia Beach base household count. For example, 14,640 of every 100 L2 *Upscale Avenues* Virginia Beach residents are your targets.

D. The base of this profile is Virginia Beach households. The base represents the selected residential area to show relevant comparisons and penetration rates. The Tapestry L2 *Upscale Avenues* summary group is 19.050 percent of the Virginia Beach base households.

E. The Tapestry Index measures the proportion of residents in a specific area relative to the proportion of the base households in an area. For example, the Tapestry Index of 160 reflects the higher concentration (34.2 percent) of L2 *Upscale Avenues* residents among surge zone residents compared to all the L2 *Upscale Avenues* in the Virginia Beach base households (19.1 percent). In other words, surge zone residents are 80 percent more likely than the average Virginia Beach base household to be in the L2 *Upscale Avenues* summary group.

After a resident's address record has been appended with a geocode and a Tapestry Segmentation code, a great deal of information is now available about the resident. Tapestry Segmentation links to volumes of consumer survey data, enabling you to learn more about targeted neighborhoods.

The power of Tapestry Segmentation is in the application of this valuable information. Marketing experts and consultants can help interpret the information and recommend the best applications to achieve the project's objectives.

The Tapestry Segmentation Profile report automatically generates a ranked list of Tapestry segments. Tapestry Segmentation identified the top 10 neighborhoods in the surge zone:

◼ #13 *In Style*—Affluent residents of metropolitan neighborhoods

◼ #07 *Exurbanites*—Affluent empty nesters in open spaces

◼ #28 *Aspiring Young Families*—Young, married-couple families/single parents in growing MAs

◼ #18 *Cozy and Comfortable*—Settled, married, and still-working suburbanites

◼ #19 *Milk and Cookies*—Young, affluent, married-couple families

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- #15 *Silver and Gold—*Wealthy, older seniors

- #12 *Up and Coming Families—*Young, affluent families with young children

- #03 *Connoisseurs—*Well-educated, wealthy, conspicuous consumers

- #39 *Young and Restless—*Young, on-the-go renters

- #09 *Urban Chic—*Well-educated residents living an urban, exclusive lifestyle

(Detailed descriptions of these Tapestry segments are found in Appendix D.)

If you remember the challenge, the fire chiefs wanted Esri to help identify the special needs populations that would benefit from evacuation preparation initiatives. The fire chiefs thought the most vulnerable populations would be the elderly, the very young, the indigent, and anyone in fragile health. The fire chiefs also wanted to find population groups that might not be physically fit and those with mobility limitations. Building on the disaster planning lessons learned from Hurricanes Katrina, Rita, and Wilma, Esri was asked to help locate people who owned pets and wouldn't evacuate without them. The fire chiefs noted that FEMA now mandates that pets be cared for during an evacuation.

From our Tapestry Segmentation analysis, a set of core and developmental residents was identified. Core residents in the surge zone comprise a larger percentage of the resident base than their percentage in the total Virginia Beach area. These segments represent people who will need assistance during a disaster and/or evacuation. In Table 2, the segment with the highest concentration of individuals with special needs in the surge zone is identified. To be classified as core, or special needs, the segments must contain at least 4.000 percent of the resident base and an index higher than 110.

Table 2
Tapestry Segmentation Profile—Core Resident Segment

Segment	Resident Count	Resident Percentage	Market Area Count	Market Area Percentage	Index
15: *Silver and Gold*	792	6.6	3,907	2.6	253

Based on criteria provided by the fire chiefs, seniors in the dominant Tapestry *Silver and Gold* segment in the surge zone were considered the most at risk. Although this segment ranked sixth in the Tapestry Profile list, Esri designated this segment as the core segment, based on the special needs population criteria. Please note that a core segment comprises a larger percentage of the resident base in the surge zone than its percentage in the entire Virginia Beach area.

Developmental segments (Table 3) comprise a significant percentage of residents in the surge zone and represent a large proportion of residents who may have been overlooked because they include family populations. Developmental segments are the top five Tapestry segments located in the surge zone. Because of their larger household size and the presence of children, these folks may have mobility issues during evacuations;

however, the fire chiefs did not consider them to need as much attention as the seniors in *Silver and Gold* neighborhoods.

Table 3
Tapestry Segmentation Profile—Developmental Resident Segments

Segment	Resident Count	Resident Percentage	Market Area Count	Market Area Percentage	Index
13: *In Style*	2,402	20.0	7,735	5.2	387
7: *Exurbanites*	1,225	10.2	11,159	7.5	137
28: *Aspiring Young Families*	1,149	9.6	20,458	13.7	70
18: *Cozy and Comfortable*	928	7.7	16,583	11.1	70
19: *Milk and Cookies*	822	6.9	14,327	9.6	72

The next step in the analysis was to create and visually display a Tapestry Segmentation area profile of residents who would be impacted by the surge zone. Figure 2 displays the Tapestry segments in the City of Virginia Beach at the block group geography level.

Figure 2
Tapestry Segments in Virginia Beach, Virginia
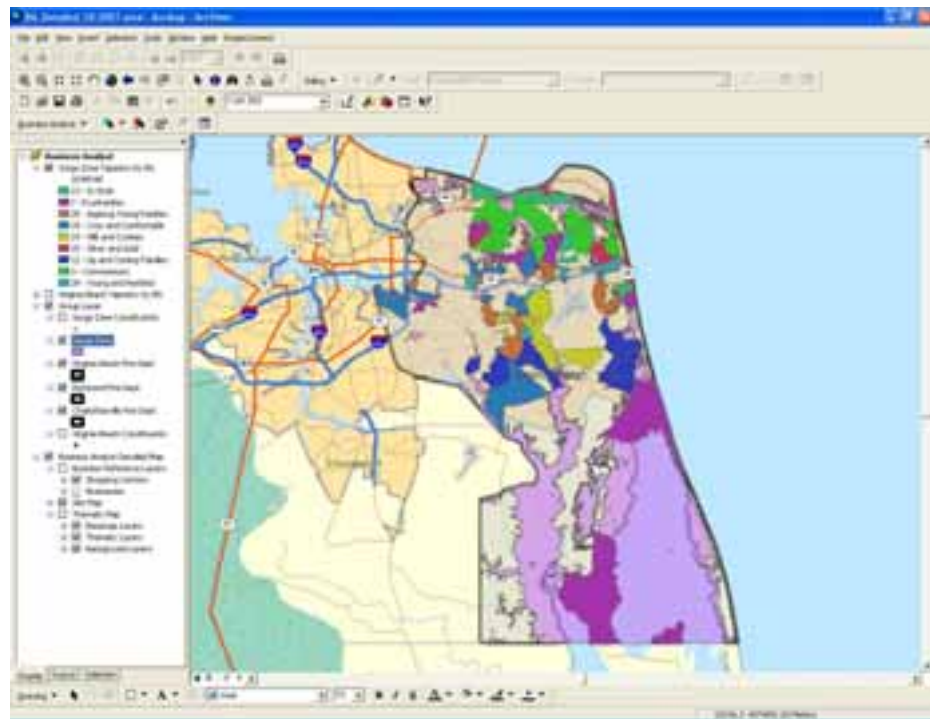
A Tapestry Segmentation block group or ZIP+4 code links a resident file directly to a basic building block of geography. A one-to-one relationship is maintained between a single Tapestry segment and each of 200,000+ block groups and/or 22 million+ ZIP+4s across the United States. By encoding a file with Tapestry Segmentation codes, a direct relationship is created between a resident's address record and the Tapestry segment.

The polygons displayed in red on this map identify the locations of *Silver and Gold* neighborhoods. Directed by the fire chief, the Virginia Beach staff can now contact homeowners' associations and senior residents' groups in these areas to help implement prevention programs.

Note: The land area at the top center of this map (Figure 3) shows no Tapestry segments because this and many other areas in and around the City of Virginia Beach are military facilities.

Figure 3
Core and Developmental Tapestry Segments in the Surge Zone
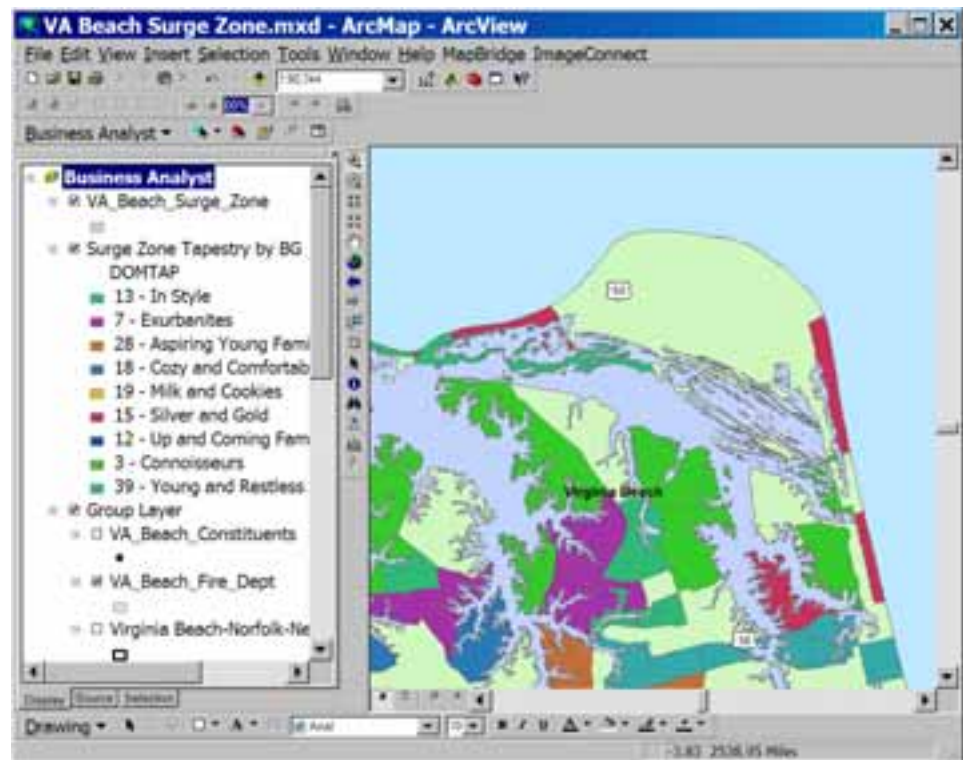
Who Are Special Needs Populations?

Tapestry Segmentation provides a new perspective of residents in neighborhoods in the Virginia Beach surge zone. To allocate resources more efficiently, fire departments must know which neighborhoods should receive particular attention. The best way to focus on selected Tapestry segments is by defining special needs groups of residents based on specific criteria. Using the Tapestry Segmentation Area Profile from the previous section, target groups of residents can be identified by combining two factors: the index and the percentage of residents.

Special Needs Populations

Although these special needs populations comprise a significant percentage of senior residents in the local area, they do not have an above-average index. Special needs populations are a significant portion of residents but also represent neighborhoods with households that may need assistance during a disaster. These could be ethnic families with small children and/or multigenerational households.

A base of *Adult Population Aged 75 and Older* was used to define the Tapestry segments with a high percentage of the residents' base to identify a segment composed of a large percentage of the resident base with an above-average age index older than age 75.

Learning about the Target Groups of Residents

What Are Their Lifestyle Characteristics?

Now that special needs populations have been identified, you must understand the similarities and differences between the lifestyles of these two distinct groups of segments. The Tapestry Segmentation Area Profile of the residents was used to calculate a weighted index that accounts for the percentage composition of each segment in the resident profile compared to that segment's index for a specific product, service, or lifestyle characteristic. The Index is an easy way to analyze the residents. Using this method, the Tapestry Segmentation profile of the residents was compared to the Tapestry Segmentation profile that is based on a syndicated citizen survey. GfK MRI conducts the Doublebase consumer survey that indicates how individuals purchase and use various products and services. If an item's Index is higher than 100, people in an area are more likely than the average U.S. household to purchase and use the product or have the lifestyle characteristic.

Note: It is important to remember that the information in this section is from the Doublebase consumer survey conducted by GfK MRI. Therefore, the information is not *actual* rating data but consumers' responses to surveys.

Because we want to focus on the *differences* between the target segments (core, developmental, and all segments) in the Virginia Beach Resident Profile, separate weighted indexes were calculated for each group.

Esri used information from the GfK MRI syndicated consumer survey to create a Market Potential database that reports indexes of lifestyle characteristics for selected products and services. Due to the large number of survey items, Esri grouped the database into these 35 categories:

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MPI_01: Apparel	MPI_19: Insurance
MPI_02: Appliances	MPI_20: Internet
MPI_03: Attitudes	MPI_21: Leisure Activities/Lifestyle
MPI_04: Automobiles	MPI_22: Mail & Phone Order/Yellow Pages
MPI_05: Automotive Aftermarket	MPI_23: Media
MPI_06: Baby Products	MPI_24: Personal Care Products
MPI_07: Beverage Consumption	MPI_25: Pets & Products
MPI_08: Books	MPI_26: Restaurants
MPI_09: Cameras & Film	MPI_27: Shopping
MPI_10: Civic Activities	MPI_28: Smoking
MPI_11: Convenience Stores	MPI_29: Sports
MPI_12: Electronics	MPI_30: Telephones & Service
MPI_13: Financial	MPI_31: Tools
MPI_14: Furniture & HH Goods	MPI_32: Toys & Games
MPI_15: Garden and Lawn	MPI_33: Travel
MPI_16: Grocery	MPI_34: Video
MPI_17: Health	MPI_35: Miscellaneous
MPI_18: Home Improvement	

For this study, Esri selected the categories of Automobiles, Health, Insurance, Pets and Products, and Leisure Activities/Lifestyles Market Potential to review. The following tables provide indexes of expected participation of the top 20 lifestyle characteristics for the core segment (*Silver and Gold*), developmental segments (Tapestry segments #13, #07, #28, #18, and #19), and overall segment (Virginia Beach surge zone) residents in the profile. Based on the index for the core segment (*Silver and Gold*) residents, the ranks are sorted from high to low.

The Automobiles category was chosen because the fire chiefs wanted to know about the types of vehicles that residents would probably drive after they received an evacuation notice. The fire chiefs can use this information to learn whether residents in the neighborhoods have reliable vehicles they can use during an evacuation. Because the lifestyle index of each vehicle item for the core segment (*Silver and Gold*) is much higher than 100, the fire chiefs can assume that residents of these neighborhoods will have dependable vehicles to use during an evacuation.

Top 20 Characteristics of Automobiles and Other Vehicles

Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Spent $30K+ on most recent vehicle purchase/lease	229	109	130
Spent $20K–$29K on most recent vehicle purchase/lease	159	125	124
Rented car from Budget (personal use) last 12 months	158	115	126
Purchased/Leased most recent vehicle with trade-in	152	106	108
Household owns/leases luxury car	145	118	126

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Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Household owns/leases full-size sport/utility vehicle	139	110	121
Belong to auto club	136	120	123
5,000–9,999 miles driven last 12 months	135	107	108
Purchased/Leased most recent vehicle with bank loan	134	104	102
Belong to AAA auto club	130	121	126
Buick: most recent vehicle purchased/leased	129	87	88
Rented personal use car last 12 months from Hertz	129	124	134
Oldsmobile: most recent vehicle purchased/leased	128	83	92
Household bought new vehicle last 12 months	126	124	125
Household owns/leases truck	126	97	96
Chevrolet: most recent vehicle purchased/leased	124	98	94
Ford: most recent vehicle purchased/leased	124	93	95
Household owns/leases two vehicles	122	115	116
Jeep: most recent vehicle purchased/leased	120	116	115
Household bought new domestic vehicle last 12 months	120	113	113

Top 20 Health Characteristics

The core index for the *Silver and Gold* segment reports health behaviors that are more likely to occur in this group than in the average US population. Those in this population group probably have mobility issues and will also need help with their medications prior to evacuating. Health issues such as weight, mobility, and heart problems might indicate a high propensity for these residents to visit a cardiologist.

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Top 20 Health Characteristics

Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Glucosamine: vitamin/dietary supplement used last 6 months	366	101	123
Cardiologist: visited doctor in last 12 months	244	102	106
Dermatologist: visited doctor last 12 months	222	119	129
Used prescription drug for arthritis/rheumatism	218	84	92
Internist: visited doctor last 12 months	201	123	130
Buy foods specifically labeled as low cholesterol	181	106	108
Used prescription drug for backache	177	90	94
Diet control for cholesterol level	173	115	112
Antioxidant: vitamin/dietary supplement used last 6 months	172	111	115
Diet control for physical fitness	171	124	128
Used prescription drug for high cholesterol	170	100	104
Vitamin/Dietary supplement used last 6 months: multivitamin with minerals	169	115	118
Wear bifocals	168	107	106
Diet control for blood sugar level	168	94	90
Used Weight Watchers as diet method	168	119	121
Vitamin/Dietary supplement used last 6 months: E	160	106	111
Bought prescription eyewear from eye doctor	159	106	109
Used prescription drug for migraine headache	155	117	114
Buy foods specifically labeled as natural/organic	154	102	115
Own stationary bicycle	149	115	114

Top 20 Insurance Characteristics

Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Obtained medical insurance: Medicare	267	82	91
Have personal liability insurance	216	107	121
Have long-term care insurance	172	125	125
Have travel insurance	171	116	119
Have home/personal property insurance: theft/loss—liability coverage	156	119	120
Have auto/other vehicle insurance: towing	152	122	121
Acquired home/personal property insurance: direct mail	150	101	106
Have home/personal property insurance: theft/loss coverage	149	120	122
Carry homeowner's insurance	147	114	115
Have home/personal property insurance: fire coverage	147	117	118
Have medical insurance: Blue Cross/ Blue Shield	146	111	113
Have home/personal property insurance: floater policy	143	126	131
Have insurance on home or personal belongings	139	113	113
Have auto/other vehicle insurance: medical payments	139	116	116
Acquired home/personal property insurance: from agent	137	116	116
Have life insurance: separate whole life policy	129	114	111
Have auto/other vehicle insurance: comprehensive	128	120	119
Have auto/other vehicle insurance: uninsured motorist	126	118	116

Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Have life insurance with total value: $20,000–$49,999	125	107	100
Have auto/other vehicle insurance: State Farm Mutual	125	113	113

Because those in the surge zone average slightly higher than the US average for owning a pet, this issue must be considered during an evacuation. Of the three target groups, residents of *Silver and Gold* neighborhoods are the most likely to own a pet. Not only are they "pet people," they also dote on their pets. Therefore, as part of the evacuation prevention plans, fire chiefs must decide how to keep companion animals safe during an evacuation. Guess what? Mom and Dad won't leave home without 'em! Veterinarians in destination areas should be notified of a possible influx of elderly pet owners who may be arriving ahead of the storm with their pets.

Top 20 Pets and Products (Additional) Characteristics

Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Household used packaged moist dog food in last 6 months.	195	83	86
Household member took pet to vet in last 12 months: 3 times.	177	117	115
Household used <4 cans of cat food in last 7 days.	161	99	100
Household used 3+ packages of dog biscuits/treats last month.	147	113	109
Household used <2 packages of dog biscuits/treats last month.	137	106	109
Household used packaged moist cat/dog food in last 6 months.	126	96	91
Household owns 1 cat.	119	108	107
Household used 25+ pounds of packaged dry dog food last month.	119	101	100
Household member took pet to vet in last 12 months: 1 time.	119	105	106
Household used dog biscuits/treats in last 6 months.	116	115	112
Household used 8+ cans of cat food in last 7 days.	110	85	91

Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Household used packaged moist cat food in last 6 months.	109	90	89
Household used packaged dry dog food in last 6 months.	105	106	104
Household used packaged dry cat food in last 6 months.	104	105	104
Household used <4 pounds packaged dry cat food last month.	104	100	102
Household used packaged dry cat/dog food in last 6 months.	104	106	105
Household used cat treats last 6 months.	103	99	101
Household owns any dog.	102	110	107
Household owns 2+ dogs.	102	102	99
Household owns 1 dog.	101	114	110

Top 20 Leisure Activities/Lifestyle Characteristics

Analyzing the leisure activities and lifestyle characteristics of the targeted segments provides another perspective of the targeted residents. Knowing more about what these residents enjoy doing in their spare time will enable community staffs to even better understand this special needs population and, during the evacuations, provide appropriate activities that might make the relocations less traumatic. All areas index high for joining business clubs; this tells the fire chiefs in the evacuation and destination areas that by attending a club meeting, they will reach "joiners" who will be receptive to evacuation planning messages.

After an evacuation, these folks would probably join similar clubs in their new communities. So, assimilation plans in the new community should include alerting civic and business clubs about the new arrivals who should be welcomed into the community.

Top 20 Leisure Activities/Lifestyle Characteristics

Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Did photography in last 12 months	155	121	148
Member of business club	152	182	153
Visited Disney World (FL) in last 12 months: Epcot Center	145	173	146

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Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Visited Disney World (FL) in last 12 months: Magic Kingdom	143	196	148
Played board game in last 12 months	143	145	140
Went to zoo in last 12 months	141	153	140
Did bird watching in last 12 months	138	107	132
Flew a kite in last 12 months	137	168	139
Attended adult education course in last 12 months	135	147	134
Visited Disney World (FL) in last 12 months: MGM Studios	135	185	140
Attended horse races in last 12 months	134	153	134
Played billiards/pool in last 12 months	133	120	128
Attended auto show in last 12 months	129	133	126
Went to the beach in last 12 months	128	156	130
Surfed the Internet in last 12 months	128	157	131
Member of union	128	103	122
Dine out once a week	127	148	128
Dine out 2+ times per week	127	145	129
Played cards in last 12 months	127	118	124
Did furniture refinishing in last 12 months	127	142	129

Communicating with Special Needs Populations

This section provides details about how to communicate effectively with the core *Silver and Gold* target group; the developmental (the top five segments) groups; and the overall, or surge zone, residents. Let's explore the media information that Tapestry Segmentation provides for the *Silver and Gold* target segment.

Top 20 Media— Listening Characteristics

Radio: Because residents of these neighborhoods prefer to listen to public radio, classical stations, and news/talk stations, they probably wouldn't hear public service announcements about the storm and evacuation on the local hip-hop or rock stations.

Top 20 Media—Listening Characteristics

Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Radio listening: golf	148	104	103
Radio format listen to: oldies	139	118	115
Light radio listener	130	86	87
Radio format listen to: classic hits	118	115	115
Light–medium radio listener	116	109	109
Radio listening: baseball regular season	114	112	113
Radio listening: Monday night pro football	112	101	104
Radio listening: baseball playoffs/World Series	110	104	107
Radio format listened to: news/talk	103	132	139
Listen to radio: 10:00 a.m.–3:00 p.m. weekdays	102	99	101
Medium radio listener	100	109	112
Radio format listened to: classical	100	113	132
Radio listening: college football	100	117	117
Radio listening: college basketball	95	119	116
Radio format listened to: country	94	92	89
Radio format listened to: jazz	89	116	116
Listen to radio: 10:00 a.m.–3:00 p.m. weekends	88	102	102
Listen to radio: 3:00 p.m.–7:00 p.m. weekends	88	103	101
Radio format listened to: adult contemporary	87	112	110
Radio listening: NFL playoffs/Super Bowl	87	106	108

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Top 20 Media—
Reading
Characteristics

Newspapers: Residents of *Silver and Gold* neighborhoods are more likely to read the travel and/or business sections in their local newspapers and are very apt to read the Sunday papers. This chart shows the breakdown of the types of publications that the targeted residents would probably read. This finding suggests that emergency personnel should consider placing emergency messaging in relevant media prior to the evacuation period.

Top 20 Media—Reading Characteristics

Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Read boating magazines	220	114	118
Read travel magazines	200	115	133
Read 2 or more daily newspapers	191	103	120
Read epicurean magazines	176	119	136
Read newspaper travel section	169	121	127
Heavy newspaper reader	158	107	120
Read business/finance magazines	157	125	135
Read newspaper editorial page section	155	114	116
Read newspaper home/furnishings/gardening section	152	113	118
Read home service magazines	144	111	114
Read newspaper food/cooking section	144	112	114
Read newspaper TV/radio listings section	144	109	112
Read newspaper business/finance section	140	121	126
Read newspaper comics section	139	106	108
Read newspaper fashion section	139	105	111
Read any daily newspaper	136	107	112
Read newspaper science/technology section	133	121	125
Read any Sunday newspaper	128	110	112
Read 1 Sunday newspaper	127	110	111
Read 2 or more Sunday newspapers	126	105	114

***Top 20 Media—
Watching
Characteristics***

TV: These folks love to watch BBC America and the Home and Garden channel. Avid news channel viewers, they watch CNBC, MSNBC, and Headline CNN News cable channels. They also tend to watch sports such as tennis and ice hockey on television.

Golf is more of a way of life than a sport for *Silver and Gold* residents. So, which TV channels does this segment watch? The Golf Channel, of course! Therefore, the Golf Channel should be the best TV choice to send evacuation messages into the entire surge zone; the BBC Channel also indexes high. This chart shows the types of programming the targeted segments would probably watch.

Top 20 Media—Watching Characteristics

Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Watched Golf Channel last week	232	130	139
Watch TV aired once/week: *JAG*	210	95	103
Watch TV aired once/week: *NBC Nightly News*—Saturday	195	90	98
Watch syndicated TV M–F: *Jeopardy!*	185	96	98
Watch TV aired once/week: NBC, *Meet the Press*	184	105	114
Watch TV aired once/week: *60 Minutes II*	182	94	103
Watched last week: National Geographic Channel	180	99	105
Watched on TV: golf	179	122	126
Watch TV aired once/week: *The West Wing*	177	113	124
Watch TV aired once/week: *60 Minutes*	176	103	108
Watched last week: Bravo	174	115	125
Watched last week: A&E Television Network	170	113	117
Watch syndicated TV (M–F): *The Oprah Winfrey Show*	168	102	105
Watch TV aired once/week: *Crossing Jordan*	167	84	93
Watched last week: BBC America	165	118	127
Watch TV aired once/week: *NBC Nightly News*—Sunday	164	90	96

Description	Core Index *Silver and Gold*	Developmental Index Segments 13, 7, 28, 18, and 19	Overall Index Virginia Beach Surge Zone
Watched last week: CNBC	162	118	124
Watched last week: Speed Channel	162	121	113
Watched last week: Turner Classic Movies	162	103	107
Watched TV aired once/week: *Third Watch*	161	91	97

Developing Communications Strategies

Based on the analysis results, the following steps are apparent. In the prevention planning stages before a disaster strikes, resident segments identified by Tapestry Segmentation as special needs populations should receive frequent, precise, direct communications about emergency preparedness programs. Here are suggested methods for reaching these target residents with appropriate messaging.

Communicating Effectively with Messaging to Residents

The fire chiefs now know that their core (*Silver and Gold*) residents are avid golf fans, might have mobility limitations, and take prescription medications. In addition, residents of *Silver and Gold* neighborhoods will be very concerned about their pets in a time of crisis. This information enables the prevention team to create messages that residents of *Silver and Gold* neighborhoods would probably notice and follow.

A county-level community services department may be responsible for community events, governmental and legislative affairs, mass media public safety campaigns, news media relations, and public education. This staff would greatly appreciate having access to information about the Tapestry Segmentation target residents of special needs populations to help them create the right messages to reach these neighborhoods.

Media Selection

Sending the right message to the right types of people at the right time is the key to successful media campaigns. Knowing who the residents are by what they read, listen to, and watch can define the options for the types of media you select. For example, if you know that this particular group of residents from a special needs population would respond well to direct mail campaigns, you should create a direct mail piece with clear information about the evacuation plans. However, we now know that the *Silver and Gold* residents read the newspaper frequently; a better decision would be to place this information in the sections of daily and/or Sunday newspapers. In addition to direct mail and newspapers, media targeting is also effective for radio, TV, cable, the Internet, and printed publications such as magazines. If you really know who the residents are in your targeted neighborhoods, you can select the media that will reach them most effectively.

Direct Mail

Direct mail is a useful tool to convey timely community service messages to affected residents. A variety of direct mail vehicles, including letters, postcards, e-mail letters, and notices, can be used to attract residents' attention. An essential element of any direct mail campaign is correct resident contact information. This initiative particularly applies to collecting contact information for residents of multiunit buildings who may be transient renters. Before starting a direct marketing campaign, answer questions such as

- Do my target residents respond to direct mail information?
- Should I use my resident list?
- Do I need to buy a list from a list broker?
- What should my message be?
- Should the message be the same for the special needs population segments?
- How do I ensure successful results?

To the extent that you have access to public relations and communications entities, Esri strongly recommends that you hire a direct mail company, advertising agency, or media service to help you create effective direct mail campaigns that will reach your special needs populations. However, before you work with an agency, map the special needs populations and prepare reports by census tract, block group, or ZIP Code geography levels to avoid targeting unaffected areas. You can purchase/use direct mail lists through a list broker.

Relocation Planning

Tapestry Segmentation information about the residents can also be used for site location analysis. For example, map a potential relocation area to see the special needs population segments and areas with an expected high number of residents. If you include this information in the evacuation plan, relocating people from these similar neighborhoods into new areas may be less disruptive for them.

When you evaluate relocation sites, consider factors such as the proximity to health care facilities, grocery stores, and government agencies and the presence of special needs population segments. Using these criteria, you can preview new relocation sites and select those that most closely match the residents' requirements.

Recovery

Throughout the recovery process, issues such as relocation will continue to surface. Methodologies similar to those applied in this pilot evacuation study can be applied to better understand the unique requirements of special needs populations in our communities.

Appendix D: Tapestry Segments Mentioned in the Analysis

The segments are listed in the order of their position in the surge zone.

(**Note:** These descriptions are from the 2010 version of Tapestry Segmentation.)

Segment #13:
In Style

Demographic

In Style residents live in the suburbs but prefer city life. Professional couples predominate. Household distributions by type are similar to those of the United States. Fifty-four percent of the households are married-couple families. Households without children (married couples without children, single-person, shared, and other family types) comprise more than two-thirds of all households. This count is increasing. The population is slightly older, with a median age of 40 years. There is little racial diversity in these neighborhoods.

Socioeconomic

In Style residents are prosperous, with a median household income of $70,745 and a median net worth of $182,665 (nearly two times that of the national median). Wages and salaries provide income for 84 percent of the households; 47 percent also receive some form of investment income. *In Style* residents are more educated compared to the national level: more than 42 percent of the population aged 25 years and older hold a bachelor's or graduate degree. At 68.5 percent, labor force participation is above average; unemployment is 8.4 percent. Forty-six percent of employed residents have professional or management positions, with above-average concentrations in the financial services, insurance, technical services, and education industry sectors.

Residential

In Style residents live in affluent neighborhoods of metropolitan areas, scattered all over the country. More suburban than urban, they nevertheless embrace an urbane lifestyle; many prefer townhomes (14 percent of households) to traditional single-family dwellings (56 percent of households). The median home value is $218,289. Homeownership is 68 percent. More than three-fourths of the housing units were built in the last 30 years.

Preferences

Computer savvy, *In Style* residents go online daily to obtain information about real estate, do their banking, track investments, trade stocks, make travel arrangements, and buy computer hardware or software and concert or sporting event tickets. They use a financial planner and invest in stocks, bonds, money market funds, money market bank accounts, and securities. Residents have life insurance and contribute to IRA and 401(k) retirement accounts. To maintain their homes, they hire professional household cleaning services and contractors and remodel their kitchens. To keep fit, residents exercise, follow a healthy diet method for weight control, buy low-fat food, and take vitamins. They go to live musical performances and gamble at casinos. They prefer to travel domestically and keep golf or backpacking/hiking in mind when choosing a vacation destination. *In Style* residents read magazines and listen to news-talk alternative radio. TV viewing includes golf and major professional sports.

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Segment #07:
Exurbanites

Demographic

Exurbanites residents prefer an affluent lifestyle in open space. Empty nesters (married couples with no children living at home) comprise 40 percent of these households; 32 percent are married couples with children. Half are aged between 45 and 64 years. Their median age of 45.5 years places these residents directly between paying college expenses and caring for elderly parents. There is little ethnic diversity; most residents are white.

Socioeconomic

At 65.2 percent, labor force participation for *Exurbanites* neighborhoods is above average. Residents are educated: more than 40 percent of the population aged 25 years and older hold a bachelor's or graduate degree; approximately three in four have attended college. They are also well employed. Approximately half hold professional or management positions. The median net worth is $368,532, four times that of the national median. The median household income is $84,522. More than 20 percent draw retirement income, and 57 percent receive additional income from investments.

Residential

Although *Exurbanites* households are growing by almost 1.6 percent annually, these are not the newest neighborhoods. Recent construction comprises only 22 percent of the housing stock. However, 70 percent of the housing units were built after 1969. Most homes are single-family structures. The median home value is approximately $248,490, one-and-one-half times that of the national median. Because *Exurbanites* residents can't take advantage of public transportation, nearly 80 percent of the households own at least two vehicles. Their average travel time to work is comparable to that of the U.S. average.

Preferences

Because of their lifestage, *Exurbanites* residents are focused on financial security. They consult with financial planners; have IRA accounts; own shares in money market and mutual funds, and tax-exempt funds; own common stock; and track their investments online. Between long-term care insurance and substantial life insurance policies, they are well insured. Many hold home equity lines of credit.

Exurbanites residents work on their homes, lawns, and gardens. To enhance their properties, they buy garden and lawn care products, shrubs, and plants. They will do many home improvement tasks such as interior or exterior painting, although they will hire contractors for more complicated projects. They own all kinds of tools, such as saws, sanders, and wallpaper strippers, to help them complete their projects.

Exurbanites residents are very physically active; they lift weights, practice yoga, and jog to stay fit. They also go boating, hiking, and kayaking; play Frisbee; take pictures; and watch birds. While on vacation, typically within the United States, they hike, go downhill skiing, play golf, attend live theater, and see the sights. This is the top market to watch college basketball and professional football games. They listen to public and news/talk radio and contribute to PBS. They participate in civic activities, serve on local organization committees, address public meetings, and help with fundraising. Many are members of charitable organizations.

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Segment #28: *Aspiring Young Families*

Demographic

Most *Aspiring Young Families* residents are young, startup families, a mix of married-couple families with and without children and single parents with children. The average family size is 3.2, near the U.S. average. Approximately two-thirds of the households are families, 27 percent are singles, and 9 percent are shared. Annual population growth is 1.7 percent, higher than the U.S. growth. The median age is 30.5 years; nearly one-fifth of residents are in their 20s. This market is ethnically diverse. Typical of younger populations, *Aspiring Young Families* residents are more diverse than the US population as a whole.

Socioeconomic

The median household income is $52,487, earned primarily from wages. The median net worth is $44,145. Approximately 60 percent of employed residents have professional, management, sales, or office/administrative support positions. Overall, 87 percent of residents aged 25 years and older have graduated from high school, 58 percent have attended college, and 24 percent hold a bachelor's or graduate degree.

Residential

Aspiring Young Families neighborhoods are located in the large, growing metropolitan areas primarily in the South and West, with the highest state concentrations in California, Florida, and Texas. Although almost three-fourths of the households are in the South and West, a fifth is in the Midwest. Half of the households rent, and half are homeowners. Residents live in moderately priced apartments, single-family houses, and startup townhomes. The average gross rent is comparable to the US average. The median home value is $137,343. Most of the housing was built after 1969.

Preferences

Aspiring Young Families residents spend much of their discretionary income on their children and their homes. They buy baby and children's products and toys and furniture for the home. Electronic purchases include cameras and video game systems. Residents go online to look for jobs, play games, and shop for computer equipment or music.

Vacations are likely to include visits to theme parks. They play video games; watch sports, news, courtroom TV, and TV entertainment shows; and go to the movies. They also play basketball, go biking, and bowl. Residents listen to urban stations and professional basketball games on the radio. They eat at family restaurants, such as Chili's or IHOP, and buy fast food at Checkers and Jack-in-the-Box.

Segment #18:
Cozy and Comfortable

Demographic

Cozy and Comfortable residents are middle-aged, married couples, comfortably settled in single-family homes in older neighborhoods. The median age of 42.3 years is five years older than the US median. Most residents are married couples without children or married couples with school-age and adult children. This is a relatively large segment, with 8.7 million people, and has grown moderately by approximately 0.6 percent since 2000. Most of the residents are white.

Socioeconomic

Although the labor force is older, they are in no hurry to retire. The labor force participation rate of 65.7 percent is above average; unemployment is at 9.3 percent. Employed residents work in a range of occupations such as professional, managerial, or service, in a variety of industries. Occupation distributions are similar to US values. The median household income is $65,665. Eighty percent of the households earn income from wages and salaries. Forty-six percent receive income from investments. The median net worth is $181,850.

Residential

Cozy and Comfortable neighborhoods are located in suburban areas, primarily in the Midwest, Northeast, and South. Many residents are still living in the homes in which they raised their children. Single-family structures make up 88 percent of the household inventory. The median home value is $154,868. Sixty-two percent of housing units were built before 1970. Homeownership is at 85 percent, and vacancies are low at 5 percent.

Preferences

Cozy and Comfortable residents prefer to own certificates of deposit and consult a financial planner. They probably have a second mortgage, new car loan, and a home equity line of credit. Home improvement and remodeling projects, including lawn care, are important to them. Although they will contract for some work, these homeowners will take an active part in many projects, especially painting and lawn care. They play golf or ice skate for exercise, attend ice hockey games, and watch science fiction films on DVD. They eat at family restaurants such as Friendly's, Bob Evans Farms, and Big Boy. They take domestic vacations.

Their home computers are generally several years old because going online isn't a priority. Television is significant to *Cozy and Comfortable* residents; many households own four or more sets. They watch sports, particularly football, and news programs on TV. Reading the Sunday newspaper is part of the routine for many households.

Segment #19:
Milk and Cookies

Demographic

Milk and Cookies represents young, affluent married couples who are starting their families or already have young children. The median age of 33.8 years represents the presence of kids; nearly half the households include children. One in four householders is between 45 and 54 years of age. Population diversity is comparable to the US diversity, and the proportions of population by race are close to the US distributions, with slightly above-average ratios of black and Hispanic residents.

Socioeconomic

Ninety percent of *Milk and Cookies* households earn income from wages. The labor force participation of 69.8 percent is above average. Although unemployment is at 9.4 percent, this market has one of the highest concentrations of multiple wage earners in the family. The median household income is $64,880, and the median net worth is $135,190. Approximately 58 percent of residents aged 25 years and older hold a bachelor's or graduate degree or have attended college.

Residential

Milk and Cookies residents prefer single-family homes in suburban neighborhoods of cities, largely in the South, particularly in Texas. Smaller concentrations of households are located in the West and Midwest. The median home value is $128,801. Housing units are generally 20−30 years old. Given the concentration of dual-income families, 71 percent of households have at least two vehicles. Families with two or more workers, more than one child, and two or more vehicles is the norm for these neighborhoods.

Preferences

As *Milk and Cookies* residents settle into their family-oriented lifestyle, they focus on family and the future. They are properly insured, carry life and accidental death and dismemberment insurance at a minimum, and contribute to 401(k) retirement plans. They use a credit union, have overdraft protection, and probably have a new car loan. Sprint is their preferred long-distance carrier. They prefer motorcycles, pickup trucks, SUVs, and minivans. Many households own a dog. The presence of children in *Milk and Cookies* households drives their large purchases of baby and children's products including baby food, baby equipment, clothes, shoes, medicine, vitamins, board games, bicycles, toys, video games, and children's videotapes and DVDs. Most households own a video game system, whether it's a Game Boy Advance, Microsoft's Xbox®, or PlayStation 2. Although many households have older personal computers, they will invest in software.

To save time, they will buy prepared dinners from the grocery store, instant breakfasts, and fast food (especially from Little Caesars, Whataburger, or Sonic Drive-In). For fun, *Milk and Cookies* residents play games including chess and backgammon, participate in football, or fly kites. Their interest in basketball is evident: they play basketball, attend professional basketball games, watch games on TV, and listen to them on the radio. Favorite cable channels include Toon Disney, ESPNews, and Lifetime Movie Network. In their spare time, *Milk and Cookies* residents work on their lawns, paint the insides of their homes, or do minor vehicle maintenance.

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Segment #15: *Silver and Gold*

Demographic

With a median age of 60.1 years, *Silver and Gold* residents are the second oldest of the Tapestry segments. More than 70 percent of the householders are aged 55 years or older. Most of them are retired from professional occupations. Half of the households are composed of married couples without children. This market is small—less than 1 percent of all US households—but the annual household growth has been 3 percent since 2000. *Silver and Gold* residents are not ethnically diverse; 94 percent are white.

Socioeconomic

These are wealthy, educated seniors. Their median household income is $67,806; their median net worth is $331,108. Fifty-six percent of households still earn income from wages or salary, half collect Social Security benefits, 63 percent receive income from investments, and 35 percent collect retirement income. Labor force participation is low at 44 percent, well below the US level. The percentage of those working from home is higher than the US worker percentage, and nearly one-fourth of employed residents are self-employed, also higher than the national level.

Residential

The affluence of *Silver and Gold* residents has allowed them the opportunity to relocate to sunnier climates. More than 60 percent of these households are in the South, mainly in Florida. One-fourth of these residents are located in the West, mainly in California and Arizona. Neighborhoods are exclusive, with a median home value of $274,320 and a homeownership rate of 83 percent. *Silver and Gold* is ranked second among the Tapestry segments for the percentage of seasonal housing. Because they moved to newer single-family dwellings, they are not living in the homes in which they raised their children.

Preferences

Silver and Gold residents have the free time and resources to pursue their interests. They travel domestically and abroad, including cruise vacations. They are also interested in home improvement and remodeling projects. Although they own the tools, they are more inclined to contract for home services from remodeling to housecleaning. They take an active role in their communities, joining civic clubs, participating in local civic issues, and writing to newspaper or magazine editors. They prefer to shop by phone and from catalogs such as L.L. Bean and Lands' End.

Golf is more a way of life than just a leisure pursuit for *Silver and Gold* residents. They play golf, attend tournaments, and watch the Golf Channel. They also go to horse races and go bird watching, saltwater fishing, and power boating. They eat out, attend classical music performances, and relax with a glass of wine. Favorite family restaurants include Outback Steakhouse, Cracker Barrel, and Applebee's.

Silver and Gold residents are avid readers of books (biographies and mysteries), magazines (boating, travel, and epicurean), and two or more daily newspapers. They watch numerous news programs and news channels such as CNBC, CNN, and Fox News. They watch non-news shows such as *Jeopardy!* and *The Oprah Winfrey Show* along with cable channels that include National Geographic Channel, A&E Television Network, and Turner Classic Movies.

Segment #12:
*Up and
Coming
Families*

Demographic

With an annual household growth rate of 5.2 percent, *Up and Coming Families* represents the second-highest household growth market and youngest affluent family market of the Tapestry segments, with a median age of 31.9 years. A mix of Generation Xers (those born between 1964 and 1984) and baby boomers (those born between and including 1946 and 1964), these residents are affluent families with younger children. Eighty percent of the households are composed of families. Most of the residents in this segment are white; however, the diversity of the population is increasing with its size.

Socioeconomic

At the beginning of their careers, *Up and Coming Families* residents are earning above-average income. The median household income is approximately $76,135, well above the national median; the median net worth is $175,142. Nearly two-thirds of residents aged 25 years and older have attended college; more than one in five hold a bachelor's degree. Labor force participation is well above average at 71 percent, and unemployment is low. Understandably, 91 percent of households earn income from wage and salary compensation. Although half of these households have children, they also have working parents.

Residential

Nearly half of *Up and Coming Families* segments are concentrated in the South, the other half in the West and Midwest. These neighborhoods are in suburban outskirts of midsized metropolitan areas with populations higher than 250,000 and are mainly new single-family dwellings. Homeownership is at 83 percent. More than half of the housing units were built in the last 10 years. The median value of houses in these neighborhoods is $175,637.

Preferences

Family and home life dictate the consumer choices for *Up and Coming Families.* Many are beginning or expanding their families, so baby equipment, children's clothes, and toys are essential purchases. Because many are first-time homeowners, buying basic household furniture and lawn fertilizer, weed control, and insecticide is important. Vying for attention in the family budget are car loans and mortgage payments. *Up and Coming Families* residents most likely own or lease an SUV or minivan. On weekends, they go through the drive-through window or take out fast food and eat out at family restaurants such as Bennigan's.

They play softball, go to the zoo, and visit theme parks (generally Sea World or Disney World), where they make good use of their digital camera or camcorder. They rent and watch comedy, family, and action/adventure DVDs. Favorite cable stations are Country Music Television, ESPNews, the Learning Channel (TLC), and the Disney Channel. They listen to the radio and to country, soft rock, and contemporary music.

Segment #03:
Connoisseurs

Demographic

Residents of *Connoisseurs* neighborhoods are somewhat older, with a median age of 47 years. Approximately 70 percent of the population is married. Although residents appear closer to retirement than child rearing, 30 percent of the households are married couples with children living at home. Ethnic diversity is negligible.

Socioeconomic

With a median net worth of $708,781, *Connoisseurs* residents are second in affluence only to the Tapestry *Top Rung* segment. They are well educated; 64 percent of the population aged 25 years and older hold a bachelor's or graduate degree. Employed residents earn wages from high-paying management, professional, and sales jobs. Many are self-employed, at twice the rate of the national average. They have a median household income of $121,368; they also supplement their salaries with income from interest, dividends, and rental properties.

Residential

Connoisseurs neighborhoods are usually slow-growing, established affluent areas in densely populated city centers where the median home value is $601,492. Most of their homes are single-family structures built before 1970; 87 percent own their homes. Commuting is a way of life; compared to the US average, more *Connoisseurs* residents live in a state other than the one in which they work.

Preferences

Connoisseurs residents may be second to *Top Rung* residents in wealth, but they are tops for conspicuous consumption. Their homes include the latest upgrades. Not do-it-yourselfers, they hire contractors for their home improvement and remodeling projects, lawn care and landscaping services for property upkeep, and professional household cleaning services. They have burglar alarms and smoke detectors installed for home security and belong to the AAA auto club for vehicle security. They grind their own coffee beans, typically Starbucks. This is one of the top markets to own or lease a luxury car or convertible equipped with a navigation system.

Exercise is a priority; they work out weekly at a club or other facility, ski, play golf and tennis, practice yoga, and jog. They also buy the latest sports attire to look good while exercising. They travel domestically and abroad, go to museums, and attend the theater and dance performances. They go online to make travel plans, track and trade their investments, and shop. They order from high-end catalogs and also shop in person at service-oriented department stores. *Connoisseurs* residents are well read. They prefer reading history books, mysteries, and biographies; read two or more daily newspapers; and read airline, epicurean, travel, finance, and business magazines. Residents listen to classical music and public, all-news, news/talk, and all-talk radio. Active in their communities, they work for political candidates or parties, write or visit elected officials, and participate in local civic issues. They eat out several times a week but will cook at home occasionally for fun.

Segment #39:
Young
and
Restless

Demographic

Change is the constant for residents of *Young and Restless* neighborhoods. This young, on-the-go population has a median age of 28.6 years. Slightly more than half of them are younger than age 35. These neighborhoods are diverse. Although 58 percent are white, there is an above-average representation of blacks, Hispanics, and Asians. Fifty-eight percent of the household types are singles or shared.

Socioeconomic

The median household income is $46,185; the median net worth is $12,857. Although the median household income is below the US median, because only 23 percent of these households include children, discretionary income is higher than for segments with similar income levels. *Young and Restless* residents are educated; 36 percent aged 25 years and older hold a bachelor's or graduate degree, and 69 percent have attended college. Career is a common element shared by these ethnically diverse residents. Both men and women participate in the labor force at much higher levels than the US rates. The 73 percent labor force participation rate is the highest among the Tapestry segments; the female labor force participation is also the highest. Most employed residents work in professional, sales, service, and office/administrative support positions.

Residential

Young and Restless neighborhoods are found in metropolitan areas: 56 percent in the South, 23 percent in the West, and 19 percent in the Midwest, with the highest concentration in the State of Texas. They rent apartments in multiunit buildings. Because 85 percent of the households rent, this segment is ranked fifth for the highest percentage of renters among the Tapestry segments. Most of the housing units were built in the 1970s and 1980s. They are mobile and willing to move for better job opportunities; 85 percent moved in the last five years.

Preferences

These young, single professionals are pursuing their careers and living a busy lifestyle. They are technologically savvy and take advantage of many convenient products and services. They go online to communicate with friends and families, shop, bank, look for new jobs, and get the latest news and sports information. They read magazines to stay current on the latest lifestyle and entertainment trends and are just as likely to read a music magazine as a business publication. Their television viewing time is average. Radio is a good way to reach them; favorite formats are contemporary hit and urban.

Seeing movies at theaters and on video is a major source of entertainment. They also go to bars or nightclubs, work out at the gym, and play various sports. Domestic vehicles have a slight edge in this market. Many have not yet begun saving for retirement or contributing to investments.

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Segment #09:
Urban Chic

Demographic

Urban Chic residents are professionals who live a sophisticated, exclusive lifestyle. More than half of these households are married-couple families, similar to the US proportions. Fewer than half of them have children. Unlike the United States norm, there is a smaller proportion of single-parent families and a higher proportion of single-person and shared households. The median age of 42.7 years is slightly older than the US median of 37 years; the diversity index of 51 is lower than the US diversity index of 61.

Socioeconomic

A median household income of $87,202 and a median net worth of $314,496 enable these residents to live a stylish lifestyle. They are well educated: more than half aged 25 years and older hold a bachelor's or graduate degree. They pursue a variety of occupations, especially management, professional, and sales positions in the scientific and technical services, educational services, and health care industry sectors. One-fifth of these households earn income from self-employment ventures; 55 percent receive additional income from investments.

Residential

Urban Chic neighborhoods parallel the United States for housing type and ownership. The setting is urban, and homes range from pre-World War II to post-2000 and from high-rise to single-family dwellings. Sixty-three percent of houses are single-family dwellings; 27 percent are apartments in multiunit structures. Homeownership is at 70 percent. Median home value is $536,367, more than three times that of the US median. Major concentrations of *Urban Chic* households are found on the northern and southern California coasts and along the East Coast.

Preferences

Urban Chic residents focus on lifestyle more than ambience. They travel extensively, visit museums, attend dance performances, shop at upscale stores, and do volunteer work. To stay fit, they downhill ski, hike, backpack, bike, practice yoga, do aerobics, play tennis, and lift weights. They buy natural or organic food and take a multitude of vitamins and dietary supplements. They choose imported wine and truly appreciate a good cup of coffee. They prefer imported vehicles.

The busy, computer-savvy *Urban Chic* residents are connected. They use PCs extensively. This is a top market to own an Apple computer. They go online to arrange travel; check their investment portfolios; trade stocks; and buy books, clothes, flowers, and tickets for concerts and sporting events. They use credit cards freely, often charging more than $700 a month. They own stocks, shares in tax-exempt funds, mutual funds, and money market funds, and will occasionally use a financial planner or brokerage firm.

Urban Chic residents are one of the top markets of the Tapestry segments for listening to classical music, all-talk, and public radio. They are avid readers of newspapers and books. They read general editorial, news and entertainment, business, and home service magazines. TV viewing is not as prevalent in this market, but their favorite cable stations broadcast news and documentaries.

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