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Office of Construction & Facilities Management

Wayfinding Innovations for VA Facilities

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Executive Summary

Project Origin and Sponsorship

The idea for this study arose from the VHA 2012 Employee Innovation Competition. Several entries in the Facilities Management category proposed enhancements to wayfinding at VA facilities, including the adoption of emerging technologies. When the innovators chose not to pursue development, the Office of Construction and Facilities Management (CFM) decided to sponsor the idea through the provision of advanced planning funds (APF). CFM initiated a project work group with representatives from a range of VA offices and regions to collaborate on this project.

Wayfinding Definition

Wayfinding is how people find their way to a destination. Traditionally, signs and maps have been the major tools to guide people through an environment.

An expanded definition of wayfinding recognizes that visitors use multiple cues and tools to find their destination—from spatial relationships manifested by the architecture to lighting and interior finishes.

A new class of wayfinding tools has emerged with the technology revolution. Global positioning system (GPS) devices, websites, apps, and on-site touchscreens can be effective tools to help people along their journey. The smartphone has become our own personal navigation device.

The VA Signage Design Guide (SDG) was published and is maintained by CFM and documents VA's approach to wayfinding and signage. It provides guidelines for the design of signs and sign programs for VHA, VBA, and NCA facilities. The SDG helps staff members assess and improve wayfinding at their facilities and provides design elements, sign types, and other material to facilitate signage projects.

Project Goal

VA's commitment to patient-centered care is a primary reason for this investigation into wayfinding innovation: To improve access by providing tools that ease the journey of Veterans traveling to and through VA facilities.

The goal of this initiative is to provide users of the SDG information on state-of-the-art wayfinding technology, including future trends in emerging technology anticipated over the next five years, with the outcome of improving navigation to and through VA facilities by incorporating recommended wayfinding technology in all newly constructed and renovated VA facilities. To accomplish this goal, the project team was charged with identifying the most innovative VA wayfinding programs that incorporate emerging technology, to research and compare these innovative programs to innovative wayfinding systems at public and private sector healthcare systems (comparable to VA), and to make recommendations to VA to guide development of future integrated wayfinding efforts.

Based on investigation and analysis of facilities comparable to VA as well as research into current VA initiatives related to wayfinding, the project team has drafted this report and

proposes a wayfinding technology strategy for VA facilities that includes best practices, methodologies for pilot projects, and recommendations for enhancements to the SDG. On 22 May 2014, a Feasibility Session was conducted with members of this project team, VA leadership, and other stakeholders to reach consensus on the strategies and recommendations documented here.

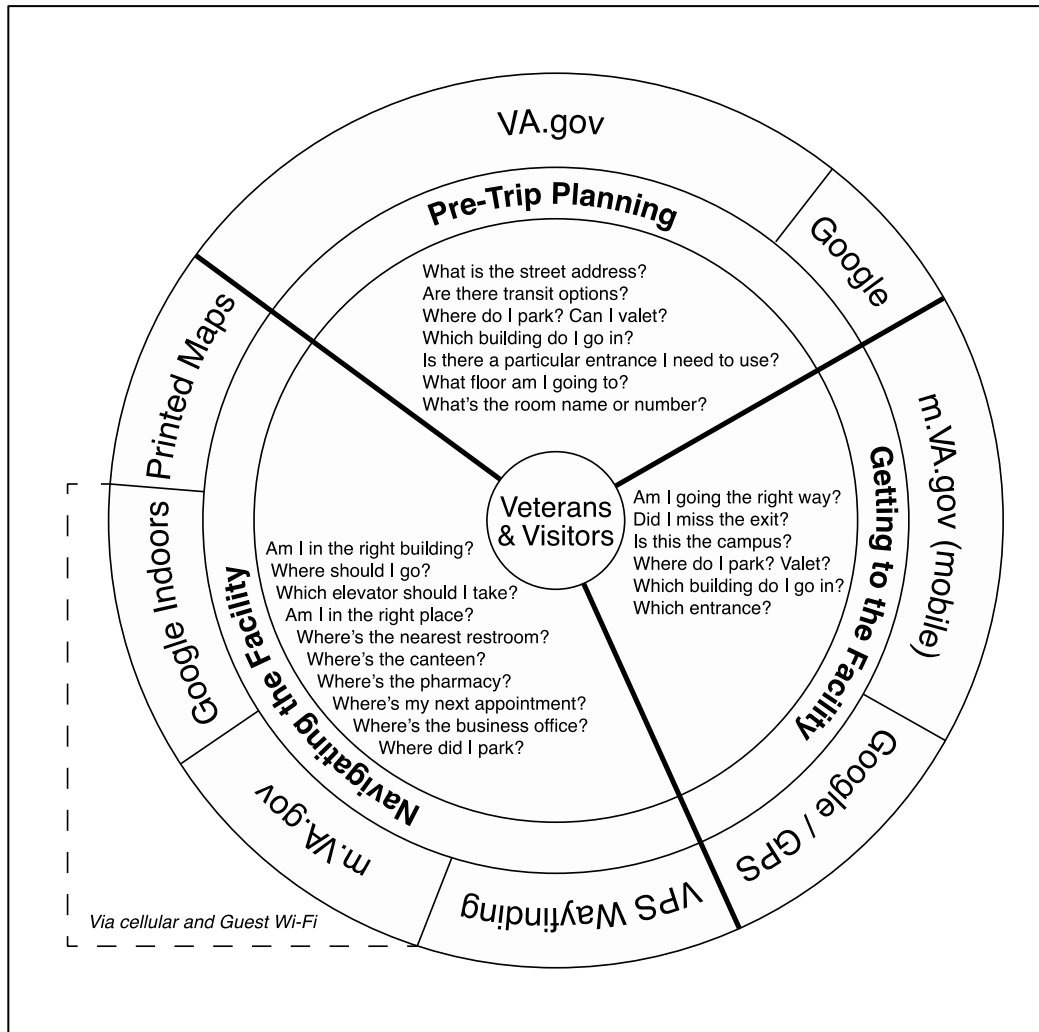


Figure 1. Solution Strategy Model

High Level Recommendations: An Integrated Approach

Recommendations in this document are structured as a Solution Strategy Model, see figure 1, that shows which existing and proposed wayfinding technology tools a visitor would use on his or her journey to and through a VA facility. This integrated approach to wayfinding recognizes that a visitor may employ a variety of tools to find his or her destination and that different tools are tuned to aid visitors at different points in the journey. Visitors are defined as Veterans, Veteran families and caregivers, and new staff members.

In summary, these are the major recommendations that support this model.

1. **Expand the current VA.gov Locations sections for all public facilities – hospitals and clinics, Vet Centers, Regional Benefits Offices, Regional Loan Centers, and Cemetery locations – to offer enhanced wayfinding information.**
2. **Build wayfinding functionality into the Veterans Point of Service Program (VPS) platform, including an enhanced wayfinding module of VetLink and wayfinding touchscreens for main lobbies of large medical centers.**
3. **For each complex facility and every cemetery, one map should be designed and published in all applicable wayfinding tools, such as printed maps, visitor guides, website, on-site touchscreens, and on-site wayfinding signage.**
4. **Adopt or further communicate a standard nomenclature for cemeteries and facilities to be used Department-wide in all wayfinding information; this is especially needed for healthcare services and destinations in VHA facilities.**
5. **Define the role of “wayfinding manager” at all VAMCs and provide tools for those responsible for maintenance and updating of wayfinding information.**
6. **Train staff and volunteers at all public facilities how to give directions and how to use all wayfinding tools.**

All recommendations have been organized into a set of two matrices: (1) **Guiding Principles and Best Practices Matrix** lists the fundamental principles and recommended practices, and (2) **Strategies Matrix** lists the methods to employ in wayfinding technology projects. Each point is further explained in the Wayfinding Technology Strategy section later in the report. Guiding principles provide the foundation for a successful wayfinding system. Best practices define methods and techniques that have proven to deliver effective and productive solutions. The platform, design, and operational strategies specify the systems, standards, and processes required to deliver coherent, useful, and sustainable wayfinding tools to Veterans and visitors.

A complete set of Platform, Design, and Operational Strategies are detailed in the Wayfinding Technology Strategy section of the report. A framework of Guiding Principles and Best Practices support these strategies.

In short, VA can make visits easier by providing door-to-door directions and on-site tools to guide Veterans and their families effortlessly to their destination, inclusive of healthcare, memorial, and benefits facilities, thus relieving Veterans of some of their anxieties.

Guiding Principles and Best Practices Matrix

1	2	3	4	5	6
GUIDING PRINCIPLES					
Tell visitors what they need to know, when they need to know it, and in the medium they prefer.	Maintain consistent nomenclature—the system of names and symbols used to direct visitors to destinations—across all wayfinding tools.	From planning through implementation, assure that the wayfinding system addresses the specific needs of the facility and those of its visitors.	Design a system that is sustainable, easy to update, and extensible as facilities change and grow.	Use cost-effective high-impact solutions, leveraging and extending assets and platforms as possible.	From the start, create a management plan that identifies the people, processes and tools to keep wayfinding content accurate and technology operational.
BEST PRACTICES					
Provide wayfinding guidance along the visitor's complete journey, starting from home.	Help people find what they are looking for by matching approved nomenclature to common nicknames.	Gauge the complexity of your environment and develop relevant tools accordingly.	Begin with a list of desired features, not a product-selection process.	Build upon VA.gov websites' Location and Directions sections, VPS VetLink platform, and the Google Indoors initiative.	Leverage currently-defined duties and consolidate similar responsibilities into a wayfinding manager role.
People prefer to use familiar technology and common interaction methods.	Use international symbols developed by the AIGA and ISO.	Design for the first-time visitor.	Develop an integrated wayfinding solution roadmap.	Stand-alone, proprietary wayfinding kiosks and apps are not viable or effective solutions for large-scale organizations such as VA.	Train front-line staff how to give directions and how to use wayfinding tools.
Verbal directions aren't enough—people need a guide.	Serve your community in relevant languages.	A visitor-friendly map should be designed for every large-scale and/or hard-to-navigate facility and provided as paper maps and downloadable maps from the facility's website.	Focus on building a robust content repository, publishing to platforms as they become viable.		
Mobile has emerged as the primary wayfinding platform.			Prototype, test, monitor, and survey to find out what works and what doesn't.		

Strategies Matrix

Platform Strategies	Design Strategies	Operational Strategies
Expand the current “Locations and Directions” sections of VHA facility pages, NCA locations, and VBA offices on VA.gov to offer enhanced wayfinding information.	For each complex facility, one map should be designed and published in all applicable wayfinding tools such as printed maps, visitor guides, website, on-site touchscreens, on-site wayfinding signage.	Adopt or further communicate a standard nomenclature of healthcare services and destinations to be used by all VHA facilities and in all wayfinding information.
Build wayfinding functionality into the VPS platform, including an enhanced wayfinding module of VetLink and wayfinding touchscreens for main lobbies of complex VA Medical Centers.	All wayfinding technology tools should provide information in the major languages of the facility’s visitors.	Define the role of “wayfinding manager” at all VA Medical Centers and provide tools for those responsible to keep the wayfinding information up to date.
In recognition that the optimal navigational device is the smartphone, extend and improve cellular service and guest Wi-Fi networks at VA Medical Centers.	All wayfinding technology tools should meet the same standards of accessibility (ABA/ADA specifications and Section 508) that VA.gov and VetLink currently attain.	Train staff and volunteers how to give directions and how to use all wayfinding tools.
Augment efforts of the Google Indoors initiative to map all VA facilities.	On-site wayfinding touchscreens (as built on the VPS platform) should conform to a checklist of usability requirements.	Every wayfinding technology tool should be covered by a service agreement and hardware refresh plans should be implemented for on-site tools.
	To ensure the utility and adoption of wayfinding technology tools, it is helpful to begin the design of each offering with participatory design sessions with Veterans and visitors.	Discourage the procurement of proprietary wayfinding technology such as touchscreens and apps by individual VA facilities.

1. Introduction

1.1 Study Objectives

The aim of this study is the evaluation of innovative wayfinding programs in the public and private sectors leading to the formulation of a set of strategies to improve wayfinding at VA facilities. These strategies are focused on the role of technology in wayfinding, both from the visitor's perspective (apps, websites, touchscreens) and from the administrative perspective (deployment and management of the tools).

With these strategies and the institutional knowledge of relevant VA initiatives in hand, VA staff members will be armed with a set of best practices and recommended functionality that will make it easier for Veterans and their families to navigate to and around VA facilities.

To provide achievable strategies and tactics, the defined range for this technology assessment is 2015-2020. In other words, these recommendations for the VA Signage Design Guide (SDG) have been developed for a proposed implementation within the next five years. Technologies that are not viable within that timeline have not been included in this report.

This initiative may grow beyond the scope of the current project to a piloting phase in which one or more recommended strategies may be implemented in one or more facilities. A later chapter in this document details considerations for defining wayfinding technology pilot projects and selecting a site or sites.

At the core of this endeavor is a more profound objective: To improve the experience of Veterans and their families at VA facilities. Visits to cemeteries, medical centers, clinics, and benefit offices can be stressful. Not knowing where to park, being late to a medical appointment, and getting lost in a cemetery are all frustrating ordeals. VA can make visits easier by providing door-to-door directions and on-site tools to guide people effortlessly to their destination, relieving Veterans of some of their anxieties.

1.2 Integrated Wayfinding Experience Model

Wayfinding is an integral part of the overall visitor experience. For this reason, the solution to any wayfinding problem should be approached from the visitor's perspective. Beginning with the visitor's point-of-view to assess and improve the wayfinding experience parallels the Veteran-centric mission of VA and its strategic goals to increase Veteran satisfaction.

The Experience Model is a framework for structuring both the wayfinding problem and the solution. It consists of seven steps, as shown in figure 2.

The problem and, ultimately, the solution are detailed within the first six steps, which are representative of a typical visitor's journey or experience arriving at and traversing the facility. Step seven refers to the critical efforts of training staff to give directions and maintaining the wayfinding system as facilities change and grow.

The model allows us to evaluate wayfinding tools according to the role each plays in a visitor's journey and to assess the overall effectiveness of a system based on how much support a visitor has at any one step.

It is important to note that a successful wayfinding program provides tools across various media at every point in the visitor’s journey. For example, some visitors prefer to navigate with a printed map, while others choose to follow step-by-step directions. An integrated wayfinding system provides redundant tools across media to help people navigate in whatever manner they prefer.

The term “integrated” means that all wayfinding tools share the same information—most importantly, the destination names—so that visitors can use any tool in the wayfinding program at any point on their journey to find their destination. An integrated wayfinding system utilizes the same nomenclature, wayfinding logic, and visual language across each element in the system. When a wayfinding system is not integrated, a visitor may receive an appointment letter with directions to “X-Ray” and yet the signs in the facility direct to “Imaging,” resulting in confusion.

The following diagram of the Integrated Wayfinding Experience Model refers to a journey to a healthcare facility, but the model’s seven steps are applicable to other facility types.

1.2.1 The Integrated Wayfinding Experience Model Summary

1	2	3	4	5	6	7
Get Information	Find the Campus/Site	Enter the Campus/Site	Enter the Building	Get Directions	Navigate and Return	Train and Maintain
Prior to departure, learn where to go and understand parking/transit options.	Use roadway signs, perimeter signs, and/or GPS to find the campus.	Find appropriate parking area, valet, shuttle, drop-off or Emergency entry.	Find the appropriate building entry.	Get directions to a destination by using signs, maps, or tools, or by asking staff.	Self-navigate to a destination or destinations and return to car, valet, or other mode of transit.	Train staff on the system and keep the system up-to-date and accurate.

Figure 2. The Experience Model

A closer look at steps one through six reveals the expectations visitors have at each point in their journey and what type of wayfinding tools they might use. For step seven, it is important to identify the requirements of the institution and the tools that support those expectations. Again, we have used a healthcare visit in this example. Signage tools mentioned below are further defined in the VA Signage Design Guide.

Step 1: Get Information

Visitor Expectations

Visitors expect to receive information from their healthcare provider about their appointments, including the street address of the facility, parking options, and directions to the destination (including floor and room name and/or number).

Sample Tools

- a. Call Center: A phone number to call to get appointment and wayfinding information; features may include the ability to email or text directions and maps.

- b. New Patient Packet: Appointment letter with directions and a map to the appointment and parking/transit options.
- c. Wayfinding Website: A feature on the institution's website to generate custom driving, parking, and walking direction to the appointment; website also optimized for smartphone and tablet use: visitors can email, text, or print directions and maps.
- d. Third-party Mapping Websites and Apps: Patients may print or email directions from sites such as Google (market leader with 83 percent market share as of December 2013), Bing (10 percent as of December 2013), or others.
- e. Car- or smartphone-based GPS: Visitors may enter the street address in their GPS to navigate.

Step 2: Find the Campus/Site

Visitor Expectations

Motorists need reinforcement that they are headed toward the campus/site, and they must recognize when they have arrived on the property.

Sample Tools

- a. Department of Transportation and City-owned Roadway Signage.
- b. Gateways and Thresholds: identify the site and welcome visitors at its perimeter.
- c. Campus and Building Identification Signs.
- d. Car- or smartphone-based GPS: Visitors may enter the street address in their GPS to navigate.

Step 3: Enter the Campus/Site

Visitor Expectations

Motorists need big, clear, explicit cues and information that can be easily read from a distance.

Sample Tools

- a. Vehicular and Pedestrian Wayfinding Signs: Directing to buildings and parking options.
- b. Building and Parking Identification Signs.

Step 4: Enter the Building

Visitor Expectations

Visitors need to locate the right building entry from the parking garage, parking lot, or from the street. When there are multiple entrances, they need to find the one closest to their destination.

Sample Tools

- a. Building Entry Identification.

Step 5: Get Directions

Visitor Expectations

Visitors must intuitively make sense of the environment, orient themselves, and see helpful resources that they can use; the wayfinding system must respond to what they know.

Sample Tools

- a. Entrance Lobby Information Desk: A prominent, staffed location where visitors can ask for directions, pick up a map or visitors' guide, or personalized directions.
- b. Printed Map: A facility or campus map and directory of major destinations.
- c. Visitors' Guide: A more detailed version of the printed map, with department phone directory and additional information on services and amenities.
- d. Custom Route Maps: Pre-printed route cards to major destinations or pre-printed maps that a staff member highlights with custom directions.
- e. Wayfinding and/or Check-In Kiosks: Well-placed self-service interactive kiosks where visitors can check in for appointments, get directions, or perform other personalized transactions.
- f. Interior Navigation by Smartphone: To provide interior walking directions and you-are-here capabilities for visitors.
- g. Wayfinding Website: Accessible by smartphone/tablet to access directions and nearby amenities.

Step 6: Navigate

Visitor Expectations

Visitors must confidently navigate to and from their destination, and they expect reinforcement and guidance at frequent intervals. Information should be progressively disclosed to prevent inundating the visitor with too much information at any one point in his or her journey.

Sample Tools

- a. Wayfinding and/or Check-In Kiosks: Placed at decision points such as elevator lobbies and destinations such as clinic waiting rooms.
- b. Orientation and Directional Signage: Wall- and/or ceiling-mounted signs that help people navigate all the public areas of the facility.
- c. Level Directories: To identify all public destinations on each floor.
- d. Department and Clinic Identification Signage: To identify public destinations.
- e. Interior Navigation by Smartphone: To provide interior walking directions and you-are-here capabilities for visitors.
- f. Wayfinding Website: Accessible by smartphone/tablet to access directions and nearby amenities.

Step 7: Train and Maintain

Visitor Expectations

An overarching expectation of visitors is that all the wayfinding information they interact with, such as directions from staff members or on signs, maps, and other tools, are accurate and up-to-date.

Institutional Requirements

Roles have been defined to manage the wayfinding system, its content, and all its public-facing tools. Administrative procedures and tools have been designed to help maintain the system, and staff have been trained and are knowledgeable and helpful.

Sample Tools

- a. A centralized repository to manage wayfinding content such as building, department, and destination names.
- b. Procedures for updating the elements of the wayfinding system when there is a change such as a department move, temporary construction re-routing, or a name change.
- c. Training for staff members (“wayfinding managers”) to maintain the repository and the elements of the system.
- d. Training for general staff on the wayfinding logic, how to give directions, and how to introduce wayfinding tools to visitors.

More specific recommendations for maintenance and training will be detailed in the section on Wayfinding Technology Strategy.

1.2.2 Potential Usage of Wayfinding Technology across the Visitor’s Journey

Because the focus of this report is the role of emerging technologies in wayfinding, it is helpful to highlight the technology-based tools and their relevance at each step in the visitor’s journey (steps 1-6) in figure 3.

1	2	3	4	5	6
Get Information	Find the Campus/Site	Enter the Campus/Site	Enter the Building	Get Directions	Navigate and Return
Wayfinding website					
Third-Party websites + apps					
GPS					
		On-site interactive kiosks			
		Interior navigation by smartphone or tablet			

Figure 3. Emerging Technology in the Experience Model

Note that GPS applications and third-party websites and apps focus on public property, with the exception of Google Indoors, which will be explained further in the section on Related VA Initiatives. On-site kiosks, by definition, are specifically an aid to navigating when you are at the facility, although they could direct to other facilities as well.

1.3 Assessment Criteria for Wayfinding Systems

In conjunction with the Integrated Wayfinding Experience Model described above, a series of questions have been developed to help VA staff assess how successful a given wayfinding system may be. The project team used these criteria to evaluate wayfinding programs at

public and private sector healthcare systems during the research phase of this project. These criteria can be used to pinpoint specific points of weakness for further examination.

Reflecting the emphasis on the Veteran-centered approach, six of the ten criteria evaluate the system from the visitor's perspective; four evaluate the system from the perspective of administration and operations.

From the Visitor's Perspective

1. Is the experience of navigating the environment intuitive?

- Are you aware that you've arrived at the right place?
- Is there a sense of place? Do you feel welcomed?
- Are there coherent vehicular and pedestrian pathways?
- Are the technology tools promoted prominently (on-site and on the facility's website)?
- Are the technology tools helpful and intuitive to use?

2. As a first time visitor, is it easy to access the tools you need?

- Is there an information desk, information kiosk, and/or greeter at the entrance?
- Are on-site technology tools well situated and accessible?
- Are tools provided in the population's main languages?
- Are technology tools properly maintained and supported? (Do the printers work, for example?)

3. Is the language friendly, accessible, and consistent?

- Are destination names easy to understand (no acronyms or medical jargon)?
- Does the name of the destination on the sign match that on the website and on patient letters, printed maps, and all other wayfinding material?
- When symbols or icons are used, are they easy to understand and remember?

4. Is the wayfinding information up-to-date and accurate?

- Do directions and maps reflect construction and temporary closures?
- Are there "hand-made" signs that differ from the permanently-installed signs?
- Is all wayfinding information proactively managed and updated?

5. Are amenities (restrooms, cafés, etc.) easy to find?

- If the wayfinding system uses landmarks, such as named elevators or spaces, are they easy to identify and remember?

6. Are the functions of technology tools simple to learn?

- Do the technology tools share a common user experience and visual vocabulary?
- Are the technology tools accessible to low-vision, hearing impaired, and wheelchair-bound visitors?
- Is there someone able to help a visitor use the technology?

From the Facility Administration Perspective

7. Is the wayfinding system easy to maintain (the physical components as well as the content)?

- Are wayfinding roles and responsibilities clearly defined?
- Is all wayfinding information centralized and "published" to various tools?

When a department is relocated, how quickly are the wayfinding tools updated?
Are the technology tools deeply integrated into relevant systems?

8. **Is the wayfinding system seen as a vital contributor to the patient experience?**
Is there an approved roadmap that details enhancements and updates?
Is there a maintenance budget available for updates that fall outside defined projects?
Do patient satisfaction surveys ask about wayfinding?
9. **Are staff well-trained in using the wayfinding system, its tools, and its nomenclature?**
Is wayfinding training a part of new employee orientation?
10. **Is there a defined role of “wayfinding manager” responsible for the system and its content?**
Is the wayfinding manager knowledgeable about upcoming construction, expansion, and renovation projects?

Answers to these questions may trigger further research to resolve problems. For example, if there are many “hand-made” signs in a facility and unclear wayfinding responsibilities among the staff, next steps may be to determine how frequently wayfinding information changes at that facility and to identify a point-person to take on the “wayfinding manager” role. Further strategies are defined in the section on Wayfinding Technology Strategy.

1.4 Key Benefits of Wayfinding Technology for VA Facilities

The last few sections have dealt with technology tools as components of an integrated wayfinding system. But what are the benefits of implementing wayfinding technology solutions at VA facilities? Six major benefits have been identified.

1. **The ubiquity of the Internet and smartphones have dramatically increased expectations of visitors to access information themselves, where and when they need it.**

VA leadership explains this shift and a commitment to address these needs in the Department of Veterans Affairs FY 2014-2020 Strategic Plan:

Communications and information technology (IT) will continue to reshape the world. Like the general public, the communication preferences of Veterans and eligible beneficiaries and their families are changing. Veterans and eligible beneficiaries increasingly expect to receive VA communications via the Internet and on mobile devices. VA must embrace and fully support changing mobile lifestyles and personalize that interaction to Veteran needs at that time and place. VA must be able to collect and analyze data to understand our client’s needs and expectations, and personalize the Veteran’s experience with VA. VA needs to be able to adapt to and keep up with the rate of technological change. (page 15)

We live in a connected world. The rapid pace of technological advancement is reshaping Veteran’s expectation regarding how services, benefits, and support should be delivered. Today’s client expects instant access to information and self-service options via the Internet, and increasingly through mobile devices like tablets and

smartphones (and the next generation “smart” devices that are yet to be deployed).
(page 24)

2. In an era when healthcare choices are expanding—for Veterans as well as for all Americans—offerings that improve patient satisfaction are a competitive advantage.

As evidenced by the site visits in the research phase of this project, medical centers that have adopted wayfinding technology, such as Kaiser Permanente, see it as an increased commitment to serving their communities.

When Kaiser Permanente undertook a broad research initiative to understand the needs of their members (entitled “Creating the Total Healthcare Environment”), two key findings emerged that underscored the relevance of wayfinding technology:

- a. The need for understanding the efficiency of the journey to the medical center and point of service. ... Members expressed the desire to have efficient communication systems for understanding the reception and copay processes, flow, and queuing, and navigating the wayfinding systems for guidance to their locations.*
- b. The need for convenience, efficiency, and timeliness of service and care. Members are keenly aware of the amount of time invested in waiting, and the uncertainty about when they will be summoned. As stated above, members view this waiting time relative to the whole of their journey. (Creating the Total Health Environment, June 2010, page 21)*

This second point touches on a way that wayfinding technology can assist in the larger mission of integrative care.

Patient satisfaction is a major part of the total brand experience. A successful wayfinding system can provide a consistent and tangible expression of the institution’s brand and values. A VA-wide branding effort is underway to articulate and reinforce the brand of VA and its services. For example, VHA interior designers are working with an internal branding team to extend the brand into environments, such as clinics and hospitals, to emphasize VA’s mission of patient-centered care. For VA, a coherent set of wayfinding technology tools can support and convey the brand as Veterans and visitors are guided to their destinations.

3. When patients can access a “live” view of their appointments and how to get to them through a kiosk, website, or their smartphone, their time at the healthcare facility can be more efficiently managed.

Appointments can be rescheduled, additional appointments can be added, such as a lab test or a specialist consultation, and integrative care can be achieved. Wayfinding technology can support this more complicated patient flow.

The Patient Aligned Care Team (PACT) model that VA employs is primed to take advantage of enhanced scheduling and real-time communication tools such as MyHealtheVet. It is instructive to describe a potential future case, in which PACT supported by wayfinding may speed diagnosis and treatment:

At 10am, a Veteran visits a primary care provider at a CBOC, where during an annual check-up an irregular heartbeat is discovered. The physician performs an electrocardiogram in the exam room and determines that further tests are needed. Those tests are conducted at the VAMC nearby. The clerk schedules the first of these tests for 1pm the same day. The Veteran has never been to the VAMC, so the clerk emails the time and location of the new appointment to the Veteran's email address. A link to driving, parking, and walking directions to Imaging are included in the email. The Veteran reads the email on his smartphone (preferred communication method as chosen on MyHealtheVet) and follows directions to the second appointment.

4. A more agile approach to wayfinding, in which wayfinding content can be updated and immediately published to devices, ensures that visitors can navigate an ever-changing environment.

VA facilities are in a constant state of flux from construction, renovation, and relocation. In 2015 alone, one billion dollars in major and minor construction is planned. Also included in FY 2015 will be approximately 30 new CBOCs coming on line, mainly through the VA leasing program.

In such variable conditions, the best way to manage change is through a content management system, where changes are identified, impacts to static signage can be quantified, and updated content can be delivered to websites, kiosks, and other tools, all in sync with construction and relocation schedules.

5. In addition to its less tangible benefits of increased patient satisfaction, the benefits of wayfinding technology can be quantified.

Just as a return on investment (ROI) exercise was undertaken by VHA for Veterans Point of Service Program (VPS), ROI could be calculated for the adoption of wayfinding technology. Based on the specific functionality of the recommended system and its costs, an assessment of its net impact could be estimated, with factors such as:

- Decrease in patients who are late for appointments because they are lost or at the wrong location.
- Decrease in staff time giving directions.
- Decrease in no-shows because patients are lost.
- More efficient management and update of signage.

6. It is an opportune time to identify strategies for wayfinding technology because systems can leverage existing initiatives and programs that are underway at VACO, VHA, and NCA.

Later in this report are summaries of related VA initiatives that were discovered during the research phase of this project.

Some initiatives are closely aligned, such as the VA Patient-Centered System Navigation Work Group. Others provide existing platforms that can be expanded to publish wayfinding information, such as the VetLink Kiosks and the VA.gov website. The VetLink Kiosk project also provides pertinent lessons learned in the deployment of self-service

technology, from planning pilot projects to identifying Integrated Project Team (IPT) members to support the endeavors.

2. Wayfinding Technology Strategy

2.1 Guiding Principles and Best Practices

Guiding principles provide the foundation for all best practices, strategies, and tactics within a given area of study. The Guiding Principles for wayfinding innovation at VA facilities define what is truly important for a wayfinding system's success and frame the recommendations that follow. The six Guiding Principles are:

- 1. Tell visitors what they need to know, when they need to know it, and in the medium they prefer.**
- 2. Maintain consistent nomenclature—the system of names and symbols used to direct visitors to destinations—across all wayfinding tools.**
- 3. From planning through implementation, assure that the wayfinding system addresses the specific needs of the facility and those of its visitors.**
- 4. Design a system that is sustainable, easy to update, and extensible as facilities change and grow.**
- 5. Use cost-effective high-impact solutions, leveraging and extending assets and platforms as possible.**
- 6. From the start, create a management plan that identifies the people, processes, and tools to keep wayfinding content accurate and technology operational.**

These Guiding Principles are a product of the research phase of this project, which included site visits and interviews with staff at VA and comparable institutions.

- Visits to five non-VA healthcare institutions with state-of-the-art wayfinding:
Houston Methodist Hospital
The University of Texas MD Anderson Cancer Center
Mountain View Center Palo Alto Medical Foundation Sutter Health
Kaiser Permanente (KP) Oakland Medical Center
University of California San Francisco (UCSF) Medical Center, Parnassus Campus and Mission Bay Campus
- Visits with three vendors of wayfinding technology:
22 Miles
Google
Connexient (via web conference)
- Visits to two VA Medical Centers (VAMCs):
Michael E. DeBakey VA Medical Center, Houston, Texas
VA Palo Alto Health Care System, Palo Alto, California
- Visit to one VA National Cemetery:
Golden Gate National Cemetery, San Bruno, California
- Interviews with the Wayfinding Work Group and other VA stakeholders (names are listed in Acknowledgements)

- Primary research on wayfinding technologies and innovations

In addition to the site visits and primary research, the findings from industry expertise and user research studies (empirical data and user perceptions) along with academic and industry research have contributed to the findings in this report.

The Guiding Principles provide context when designing the solutions outlined in the Recommended Strategies section and should be applied at the beginning of all relevant projects to guide decision-making.

Associated with each of the Guiding Principles are Best Practices: Methods and techniques that have proven to deliver effective and productive solutions. When available, examples demonstrate how the Best Practices have informed a project.

Guiding Principle 1: Tell visitors what they need to know, when they need to know it, and in the medium they prefer.

It is easy to overwhelm visitors with too much information. The concept of progressive disclosure—giving people just enough information to complete the current segment of their journey—has been proven to make complex environments simpler to navigate.

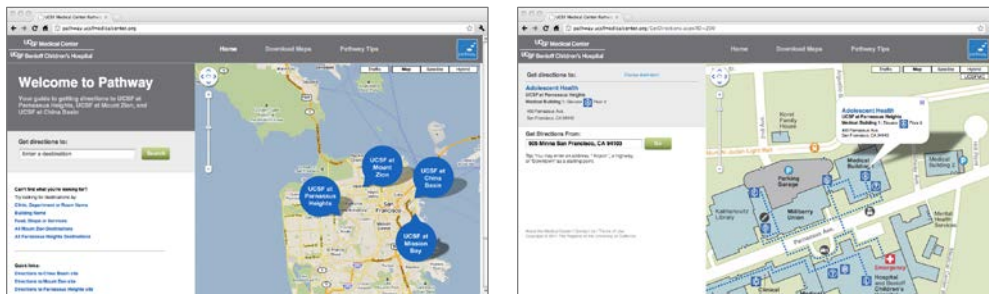
There is no single most effective wayfinding tool. Signs, maps, directories, kiosks, apps, and websites must all work together in concert to provide information to visitors in the platform and medium that they choose to consult. Visitors often use a variety of tools on a single journey.

Best Practices

- Provide wayfinding guidance along the visitor’s complete journey, starting from home.

Example

On their websites, MD Anderson Cancer Center (access.mdanderson.org) and UCSF Medical Center (pathway.ucsfmedicalcenter.org) provide driving, parking, and walking directions to all public destinations. Directions are optimized to provide the best place to park to reach that destination. From their homes, visitors can generate a customized, full direction set and print or email it to themselves.



Facilities that only provide on-site kiosks do not fulfill a crucial part of the journey: getting from home to the destination. VAMC staff report that Veterans may go to the wrong facility for their appointment, since there is often more than one VHA facility in

the area. It is critical to provide accurate driving and transit directions in all communications to the patient and on the medical center's website.

The Integrated Wayfinding Experience Model described in the previous section identifies all the steps of a journey and can help identify potential gaps.

- B. People prefer to use familiar technology and common interaction methods.

Example

A 2011 user research study at New York University Langone Medical Center in New York tested the concept of printing barcodes on patient appointment letters and equipping digital signs with barcode scanners. The barcode carried the patient's destination, such as "Blood Lab" and their language preference, such as Spanish. When scanned, the digital sign would show directions to the destination in the preferred language. None of the 26 study participants used the barcode at the digital sign; it was an awkward and novel interaction that was unknown to the visitors. The design team redirected their efforts toward web-based resources and on-site touchscreen kiosks.



In 2014, the most familiar and most-utilized technologies are the web and the smartphone. Touchscreen kiosks, such as ATMs, self-checkout at the supermarket, airport check-in, and gas station pumps are part of daily life, too.

However, there are no standards in the user interface design for a kiosk, unlike the codified user interface guidelines for an operating system. This means that there is a learning curve associated with every interaction with a new touchscreen kiosk. The user interface should be simply designed, tested at the prototype stage, and revised during the design and development phases to ensure high levels of usability.

The most successful kiosk implementations are built to serve a single, concise function that can be completed in about a minute or two. Information and commerce transactions should be simple and helpful.

- C. Verbal directions are not enough—people need a guide.

Example

In a 2011 user research study at New York-Presbyterian Hospital/Weill Cornell Medical Center, researchers sat at the main information desk and asked visitors what they brought with them to help them find their way. The abundance of handwritten notes confirmed that the majority of directions were given verbally. Directions were often inconsistent, incomplete or inaccurate, causing confusion and anxiety. The medical center staff decided to publish a visitor guide and distribute it to physicians' offices, information desks, and clinics to arm patients with a pocket-sized source of accurate information.

Whether it is an internally-produced one-page main floor map and directory or a professionally printed reference guide, visitors appreciate and use paper guides to navigate with confidence through unfamiliar places.

Mapping strategies are further described in the VA Signage Design Guide section "You are Here Maps and Directories."

- D. Mobile has emerged as the primary wayfinding platform.

As stated in the Department of Veterans Affairs FY 2014-2020 Strategic Plan:

We are an online and mobile society; physical proximity is no longer a constraint to communicating, whether to converse with family and friends or to purchase goods and services. ... We are increasingly using mobile devices to conduct our online interactions. Global mobile data traffic in 2012 was nearly 12 times greater than the total global Internet traffic in 2000. (pages 14-15)

As of January 2014, the Pew Research Internet Project reports that 90 percent of American adults have a cell phone and 58 percent of American adults have a smartphone. Age and economic factors are diminishing. Additionally, 74 percent of adult smartphone owners ages 18 and older say they use their phone to get directions or other information based on their current location.

Cell owners in 2014	
<i>Among adults, the % who have a cell phone</i>	
All adults	Have a cell phone 90%
Sex	
a Men	93 ^b
b Women	88
Race/ethnicity*	
a White	90
b African-American	90
c Hispanic	92
Age group	
a 18-29	98 ^{cd}
b 30-49	97 ^{cd}
c 50-64	88 ^d
d 65+	74
Education level	
a High school grad or less	87
b Some college	93 ^a
c College+	93 ^a
Household income	
a Less than \$30,000/yr	84
b \$30,000-\$49,999	90
c \$50,000-\$74,999	99 ^{ab}
d \$75,000+	98 ^{ab}
Community type	
a Urban	88
b Suburban	92
c Rural	88

Source, Pew Research Center Internet Project Survey, January 9-12, 2014. N=1,006 adults.
 Note: Percentages marked with a superscript letter (e.g., ^a) indicate a statistically significant difference between that row and the row designated by that superscript letter, among categories of each demographic characteristic (e.g., age).
 * The results for race/ethnicity are based off a combined sample from two weekly omnibus surveys, January 9-12 and January 23-26, 2014. The combined total n for these surveys was 2,008; n=1,421 for whites, n=197 for African-Americans, and n=236 for Hispanics.

PEW RESEARCH CENTER

Smartphone owners in 2014	
<i>Among adults, the % who have a smartphone</i>	
All adults	Have a smartphone phone 58%
Sex	
a Men	61
b Women	57
Race/ethnicity*	
a White	53
b African-American	59
c Hispanic	61 ^a
Age group	
a 18-29	83 ^{bcd}
b 30-49	74 ^{cd}
c 50-64	49 ^d
d 65+	19
Education level	
a High school grad or less	44
b Some college	67 ^a
c College+	71 ^a
Household income	
a Less than \$30,000/yr	47
b \$30,000-\$49,999	53
c \$50,000-\$74,999	61 ^a
d \$75,000+	81 ^{abc}
Community type	
a Urban	64 ^c
b Suburban	60 ^c
c Rural	43

Source, Pew Research Center Internet Project Survey, January 9-12, 2014. N=1,006 adults.
 Note: Percentages marked with a superscript letter (e.g., ^a) indicate a statistically significant difference between that row and the row designated by that superscript letter, among categories of each demographic characteristic (e.g., age).
 * The results for race/ethnicity are based off a combined sample from two weekly omnibus surveys, January 9-12 and January 23-26, 2014. The combined total n for these surveys was 2,008; n=1,421 for whites, n=197 for African-Americans, and n=236 for Hispanics.

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Guiding Principle 2: Maintain consistent nomenclature—the system of names and symbols used to direct visitors to destinations—across all wayfinding tools.

The importance of using consistent language, especially in a complex healthcare environment, cannot be overstated. When the same destination is referred to as “Diagnostic Imaging” on an appointment letter, “Radiology” on signs, and “X-Ray” by the information desk attendant, the visitor is sure to be confused. The deliberate act of documenting and enforcing a single vocabulary of names yields great improvements in wayfinding.

Inconsistent names arise from the lack of a centralized approach to wayfinding. An interior designer or facilities manager may be responsible for signage, and volunteer services may manage the printed maps. A centralized database, or a single spreadsheet for smaller facilities, can house the approved nomenclature, which can be shared across the organization to use in all public communications. Some initiatives are underway to standardize the nomenclature across VA facilities.

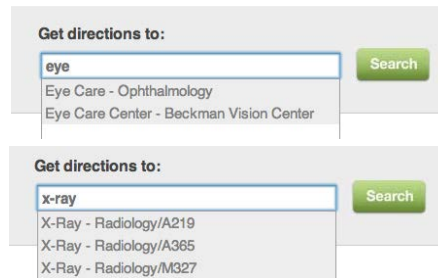
Best Practices

- A. Help people find what they are looking for by matching approved nomenclature to common nicknames.

Example

At the UCSF Medical Centers, the wayfinding manager uses a custom-built web-based application to manage all wayfinding content as well as the wayfinding website and touchscreens. From her desk, she can run reports that list what people searched for on the website and touchscreens but did not generate any results. On a regular basis, she culls this report to find nicknames or aliases for UCSF destinations and adds those to the database. Every official name of a destination can be associated with up to ten nicknames. This allows visitors to get results and directions, even when they do not know the one official name of the destination.

A search for...	results in...
eyecare	Ophthalmology
heart center	Cardiac Center
xray	Radiology
registration	Admissions
coffee	Starbucks
ENT	Otolaryngology



This is a great advantage of using technology for wayfinding. Once the official name is finalized, the system can also hold other names that refer to that destination.

- B. Use international symbols developed by the AIGA and ISO. The AIGA (founded as the American Institute of Graphic Arts) and the International Organization for Standardization (ISO) have codified a set of internationally recognizable symbols for objects, places, and navigation. While other organizations have produced customized icons that may or may not be understood easily, the symbol sets from AIGA and ISO remain the standard and should be used consistently in signage and all wayfinding technology applications. Symbols should always be used with their names, such as:



Toilets – Women

- C. Serve your community in relevant languages.

Example

Kaiser Permanente Oakland Medical Center offers a printed visitor guide in English, Chinese, and Spanish, the major languages of the populations they serve. KP also chose to embed wayfinding touchscreens in the two entrance lobbies and at all elevator lobbies. The touchscreens offer the same language options. Multilingual

offerings are a priority for KP, and their National Facilities Services department manages all translations for patient communications.



To offer multilingual capabilities on websites, apps, and touchscreen kiosks, the requirements must be detailed at the start of the project. Adding a second language to an existing English application is less efficient and more costly. Machine translations, such as Google, are not yet at the level of accuracy to be dependable, especially for medical terminology. Interpreters and translators should be consulted on all language and associated cultural issues.

Guiding Principle 3: From planning through implementation, assure that the wayfinding system addresses the specific needs of the facility and those of its visitors.

Buildings are planned to serve distinct purposes and to support specific activities that are performed inside their walls. A hospital is designed to house all the people, processes, and equipment engaged in the healing process. A business office is designed to serve customers and process their transactions. A successful wayfinding system is tailored to the flow of people in the environment and to the size and/or complexity of the environment itself.

Best Practices

- A. Gauge the complexity of your environment and develop relevant tools accordingly.

It is important to understand how complicated a facility is before determining a wayfinding strategy to help visitors navigate that environment. Some facilities have simple visitor-flow patterns. A VBA office, for example, may simply consist of a waiting room and adjoining offices for meetings with Veterans. Its wayfinding needs are few compared to a VA Medical Center, where Veterans navigate to an average of three clinics or offices during one visit.

A series of questions to help determine the relative complexity of a given facility is provided in the section “Gauging the Complexity of the Environment” later in this document.

- B. Design for the first-time visitor.

Example

A VHA Interior Designer noted that she and her colleagues have informally tested the efficacy of their wayfinding systems by asking friends, family members, and university students to find their way to destinations at VA Medical Centers. Facility staff members know their environment so well, it is important to find ways to see the lobbies, corridors, and clinics through the eyes of a first-time visitor.

When it comes to employing wayfinding technology, it is even more important to design for people who are new to the system. There is a certain wariness about interacting with a new kiosk, device, or app for the first time, and if that interaction is unsatisfying, the majority of users will not try it again.

- C. A visitor-friendly map should be designed for every large-scale and/or hard-to-navigate facility and provided as paper maps and downloadable maps from the facility's website.

Examples

Some VHA facilities have produced their own maps and visitor guides; examples include VA Hudson Valley Healthcare System, Baltimore VA Medical Center, and VA Palo Alto Healthcare System. These maps are offered as downloadable documents from the facilities' websites as well as at information desks.

As noted above, research has proven that people navigate more confidently when they have something to refer to, such as a map. As usage of smartphones approaches ubiquity, that "something" may be their smartphone and the web, but until that point, a paper map is a trusty aid.



It is also important to note that the size and complexity of a facility should inform the relevance of wayfinding technology for that visitor population. A series of questions to help determine the relative complexity of a given facility is provided in the section "Gauging the Complexity of the Environment" later in this document.

Mapping strategies are further described in the VA Signage Design Guide section "You are Here Maps and Directories."

All wayfinding information, maps, and visitor guides require maintenance and update planning, as explained in the following guiding principle.

Guiding Principle 4: Design a system that is sustainable, easy to update, and extensible as facilities change and grow.

The one constant in healthcare environments is change, and VHA facilities are no exception. Systems to support wayfinding technology must be designed to evolve in tandem with the facilities they track and the visitors they serve. Closed, proprietary products do not thrive in environments such as these. Solutions for VA facilities must be modular and able to integrate into other systems so that data can remain consistent across all the applications that use that data. For example, an appointment management database should receive a feed of destination names and their locations from the wayfinding database. When a destination moves, its location will be automatically updated in patient appointment records.

Best Practices

- A. Begin with a list of desired features, not a product-selection process; determine needs first and then evaluate potential solutions based on how they address the needs.

Example

As part of an IT-sponsored initiative to improve patient experience, a large medical center (nearly 2,500 beds on five campuses) contracted with a wayfinding app vendor to produce a branded version of the vendor's standard app. The IT department collected destination and mapping data to deliver to the vendor, but the content was outdated before the app was completed, because there were no defined processes to maintain it. The hospital's marketing department reviewed the app after it debuted one year ago and determined that it was difficult to use and displayed inaccurate information. Marketing decided not to promote the app to visitors until specific issues were fixed; however, the app vendor does not offer customization services, and there were no operational plans put in place to keep data up-to-date. The faulty app remains abandoned in the app store; the vendor lists this client as a satisfied customer; and the marketing department is undertaking a study to determine visitors' wayfinding needs prior to finding tools to meet those needs.

While some vendors have tried to productize wayfinding technology for specific vertical markets, the market is young and their standard feature sets most likely will be insufficient to match the needs of VA visitors and staff. In following VA's Veteran-centric approach, it is best to itemize the desired features of the system and evaluate solutions based on those criteria.

- B. Develop an integrated wayfinding solution roadmap.

Example

The Veterans Point of Service (VPS) team manages the VetLink platform of self-service kiosks at VHA facilities (see section on Related VA Initiatives). The VPS Product Manager supervises a team of project managers who draft requirements for new features and enhancements. Approved features get scheduled into a series of upcoming releases (two per year for 2014 and 2015). This roadmap ensures that VetLink remains an integral platform with increasing functionality and that it addresses a larger collection of Veterans' needs over time.

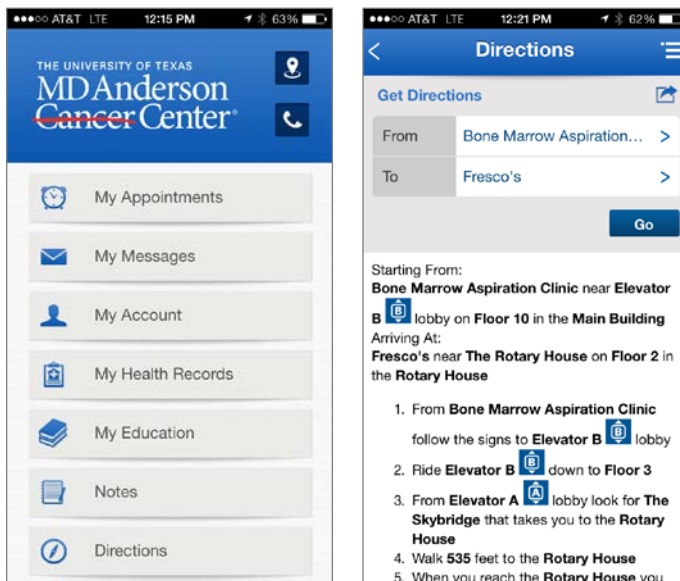
VPS ROADMAP	FY14		FY15	
	Release 5.3 Q1	Release 5.5 Q3	FY15 (2 releases)	
ADMIN	Release of Information (ROI) Form Submission	Patient Queue Context Based and Rule-Based Interface with Action Button Flow Creation	Insurance Card Scanning**	VistA Integration
	Insurance Hard Stop	Co-pay Payment/Credit Card Processing**	Seas, DaaS (HTML 5 Presentation Layer)	VistA Appointment Status Integration*
	Beneficiary Mileage Reimbursement (Phase 1)	Patient Update Consolidation	Biometrics	Assignment of Benefits
	Patient Usability Improvements - Phase 1	Staff Usability Improvements - Phase 1	Data Analytics/Warehouse	Real-Time Address Verification User**
	VistA Printing - Health Summaries (Medication Reconciliation Worksheet*)	User Group Permission Configuration	Washington D.C. Experience	VSS*
		Predictive Updates Suggestions and Patient Expectation Alignment	VAP Integration (10-0485, 10-5345 SSA, 10-0484a, 100525, and 10-0525a)	RDI - Phase 2
		Beneficiary Mileage Reimbursement (Phase 2)		Dual Eligible Veterans
		Automated Patient Updates		
CROSS CUTTING	Patient Queuing - Pilot Phase 2	Patient Question Queue (Formerly Logic-Based Decision Tree Functionality)	Appointment Barcode Scanning**	Mobile App**
	Remote Procedure Calls (RPCs) - Read/Write - Phase 2*	Patient Queuing - Pilot Phase 4	Appointment Request**	Patient Contact Management**
	Reporting Warehouse**		Consume VLER Services	Single Sign On**
	Patient Queuing - Pilot Phase 3		DoD Refill (patient)	Veteran Canteen Service
			Million Veteran Program (MVP) PHASE C**	Build and Customize Workflows
			MHV Integration**	Legislative Mandates
			Fast Track (provider)	Walk-in (patient)

Wayfinding technology is most successful when it is not a one-time project, but an investment that is continually assessed and enhanced over time.

- C. Focus on building a robust content repository, publishing to platforms as they become viable.

Example

MD Anderson launched its integrated wayfinding system in 2004, three years before the introduction of the iPhone. At launch, the centralized database drove the wayfinding website and on-site touchscreen kiosks. In 2013, when MD Anderson’s Marketing department started development of a mobile app, they were able to integrate a data feed from the existing wayfinding database and develop a “Get Directions” feature with relative ease.

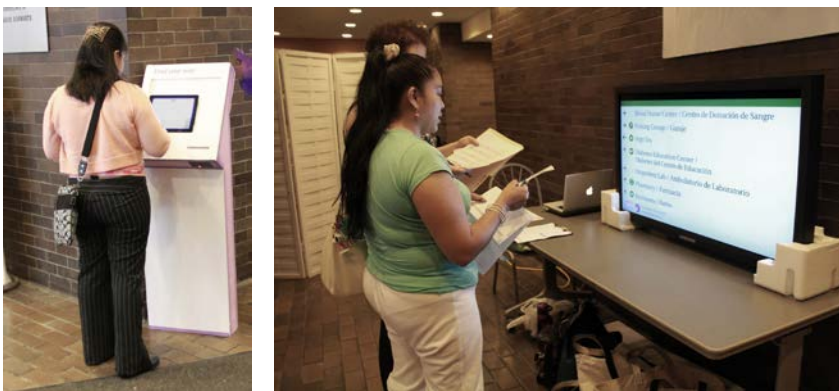


It is difficult to plan for the adoption of new technologies and devices more than five years into the future. However, when the center of the system is a database of accurate content, that content can be published to various devices as they gain traction in the marketplace.

D. Prototype, test, monitor, and survey to find out what works and what doesn't.

Example

When designing the physical enclosure for their wayfinding kiosks, both MD Anderson and NYU Langone Medical Center chose to create low-tech mock-ups to test the accessibility and approachability of the kiosk. The foam-core prototypes informed design refinements, such as ways to diminish glare and to better broadcast the function of the kiosk.



Research activities, such as user-testing and prototyping, generate critical input during the planning phase of technology projects. It is also important to institutionalize some research methods so that ongoing performance can be measured. Patient satisfaction surveys can be modified to include questions about wayfinding in general and about the usefulness of specific wayfinding tools.

Websites, apps, and kiosks allow for extensive usage reporting and other metrics. These reports can be helpful in determining the optimum number of kiosks. If their usage is low, websites and apps may need to be promoted through patient communication tools.

Guiding Principle 5: Use cost-effective high-impact solutions, leveraging and extending assets and platforms as possible.

Wayfinding is a small but impactful part of the Veteran's experience at VA facilities. As one VA staff member who is also a caregiver told us, "Wayfinding is the difference between a good trip and a bad trip to the doctor."

VA has invested in platforms and communication tools to serve Veterans and their families. These same tools, because they were built to be extensible, offer great opportunities to deliver wayfinding information in the context of the Veteran's interactions with VA.

Best Practices

- A. Build upon VA.gov websites' Location and Directions sections, VPS VetLink platform, and the Google Indoors initiative.

Upon review of the related initiatives that have been identified in the research phase of this project, there are three platforms/assets that provide foundations for building wayfinding resources for visitors.

The VA.gov website currently provides driving directions and links to maps to help Veterans get to all its public facilities (NCA, VBA, and VHA). These sections could be enhanced to provide customized maps and information on interior wayfinding, consolidating all wayfinding information for the facility in the one area. Implementing a system of standardized destination nomenclature will be a key to a successful expansion of directions on VA.gov.

As described in the section on related VA initiatives, VetLink is positioned to be the centralized point of service for an expanding set of Veteran interactions. VetLink includes an optional wayfinding module with limited functionality that has not been deployed in many sites. The VetLink deployment to date numbers more than 3,315 kiosks in 95 VHA facilities. With expanded directions capabilities, VetLink is poised to be the primary platform for communicating on-site directions to Veterans and visitors.

Through the Google Indoors initiative, also described in the section on related VA initiatives, VA has begun a working relationship with the largest and most accurate provider of maps and directions. Google Indoors is not yet marketed and promoted to Google users, so awareness of its features is currently low. But, as Google achieves critical mass of floor plans, they are sure to launch marketing and promotional efforts to introduce its capabilities to their users.

- B. Stand-alone, proprietary wayfinding kiosks and apps are not viable solutions for large-scale organizations such as VA.

Examples

Houston Methodist Hospital purchased a wayfinding kiosk system in 2010 and currently maintains about 20 wayfinding kiosks in its five locations. Form-factors range from wall-mounted displays to podiums and desks with embedded screens. The hospital also operates a separate network of check-in kiosks for major clinics. The systems are not integrated; patients do not receive wayfinding information on the check-in kiosks. Often the two kiosks (with different user interfaces) are placed next to each other, causing confusion for visitors. Some updates can be done through the vendor's administrative software, but map updates require coordination with the vendor. When the vendor was acquired by another company, service declined, and it is unclear whether the wayfinding products will continue to be supported.



It is important to note that Methodist is satisfied with their current systems, but in the context of VA operations, scale, and volume, a solution similar to this would not be viable.

Wilmington VA Medical Center employs a system of wayfinding kiosks produced by LogicJunction. The system is further described in the Related Initiatives section of the appendix. The twelve kiosks display an avatar—a video of a woman named Val—on the kiosk screen. Visitors must touch a button on the screen below her to step through a series of screens to select their destination from a number of categories. Then the directions appear on the screen and can be printed. VA staff noticed that people were not approaching the kiosk so they installed a sign above it to emphasize its function. At this time, the system is not integrated with any VA internal systems and does not have a content management system that staff can use to update the content. When a department moves, a VA project engineer contacts LogicJunction and the vendor makes the update. If VA requests usage reports, the vendor may provide them.



This proprietary system was not developed specifically for VA and staff report low usage of the tool. This may be due to (1) the fact that Wilmington, at 500,000 square feet, may not require on-site tools, as explained in the section on Gauging the Complexity of the Environment; or (2) the fact that the user interface is awkward to navigate. The reliance on the vendor to manage and track metrics does not provide VA staff enough control over the system and its future expansion.

Additionally, at two VA Medical Centers, there are remnants of wayfinding kiosk experiments. At the VA North Texas Health Care System, there are three competing kiosk systems, including a wall-mounted directory that no longer functions. At Michael E. DeBakey VA Medical Center, an inoperable wayfinding kiosk stands in the main lobby.



It is important to understand the shortcomings of stand-alone wayfinding kiosks. The majority of wayfinding kiosks that have been purchased on an ad hoc basis by VAMCs, similar to those at DeBakey, are unsupported, not functioning and/or not providing up-to-date information. It is recommended that VA consider a moratorium on the purchase of proprietary wayfinding kiosks and instead pursue the recommendations of this report and invest in the expansion of current systems to provide wayfinding functionality to Veterans and their families.

Guiding Principle 6: From the start, create a management plan that identifies the people, processes, and tools to keep wayfinding content accurate and technology operational.

As emphasized throughout this report, wayfinding content must be kept up-to-date to be helpful to visitors. It is not a one-time project, but an institutional responsibility that must be identified and supported with processes and tools. It is important to begin any wayfinding project with this understanding and with a plan for keeping the content accurate.

It is also relevant to note that wayfinding updates cannot only be project-driven or scoped solely as part of funded construction projects. Wayfinding changes occur outside construction projects, such as name changes of destinations, relocations of offices and clinics. An effective system requires constant supervision and consistent operational support.

When wayfinding technology is a part of the overall wayfinding strategy, there are additional maintenance responsibilities to keep the software, hardware, and networking components up and running.

Best Practices

- A. Leverage currently-defined duties and consolidate similar responsibilities into a wayfinding manager role.

Throughout the course of this project, a collection of current wayfinding responsibilities have been identified:

- Interior designers at VAMCs are responsible for maintaining and updating signage, including wayfinding signs.
- The Public Affairs Officer at VAMCs is responsible for keeping the VA.gov website for their facility up to date, including driving directions, maps, and parking information.
- Voluntary Services manages volunteers who give directions at information desks and aid Veterans in using VetLink, among other responsibilities.
- For VHA facilities that are deploying VPS VetLink kiosks, there are integrated project teams (IPTs) responsible for aiding in implementation, determining kiosk locations, running kiosk reports, and managing any wayfinding content that may be offered through VetLink.
- For the Google Indoors Initiative, IPTs have been assigned to gather floor plans and department information to deliver to Google and are responsible for updating that information as needed.

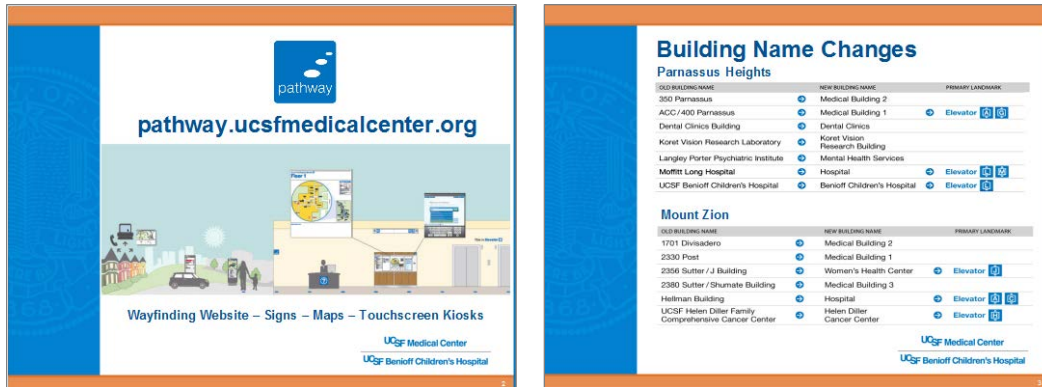
In evaluating non-VA institutions with robust wayfinding programs, those with dedicated, centralized staff to manage the content and hardware/software have proven to be the most successful and the most sustainable over time.

Even though it is not within the scope of this report to recommend a staffing plan for wayfinding management, it is important to understand that there is a collection of responsibilities that must be identified and operationalized for the system to be effective.

- B. Train front-line staff how to give directions and how to use wayfinding tools.

Example

At the UCSF Medical Center, a staff training program was introduced in conjunction with the launch of the integrated wayfinding system. New employee orientation includes a section entitled “How to give directions” and front-line staff (information desk attendants, physician office receptionists, and call center staff) receive more in-depth training on the logic of the system and its tools.



Wayfinding technology is not just patient-facing; staff members use wayfinding websites and apps to help patients and visitors and also to navigate unfamiliar parts of their own campus. Including staff in the launch process ensures their adoption of the tools.

These six Guiding Principles and their associated Best Practices have been used as the basis for specific recommended strategies that are detailed in the next section.

2.2 An Integrated Approach: Solution Strategy Model and Recommended Strategies

All of the guidance about wayfinding systems and technology in the previous sections pertain to VA facilities as a whole. This section delves deeper into strategies to deliver enhanced wayfinding information to visitors via relevant technologies—all tuned to serve the specific needs of Veterans and their caregivers and families.

To begin, the Solution Strategy Model (shown as figure 4) demonstrates the proposed strategies in the context of visitors and their needs along a journey to and through a VA facility. Encircling the wayfinding information that they seek are the tools and platforms that provide the relevant information.

Illustrating **Guiding Principle 1—Tell visitors what they need to know, when they need to know it, and in the medium they prefer**—the model includes multiple media to answer the visitor’s questions. Not all tools and media are necessary at every facility.

For example, a small CBOC or VBA office with one entrance and no elevators may not have any on-site wayfinding issues; getting to the building may be the only issue. In that case, having accurate driving directions as well as transit and parking information on the VA.gov website may be the only enhancement to the current offerings. The following section provides a questionnaire to help staff gauge how complicated their facility is; a more complex facility requires more on-site wayfinding guidance.

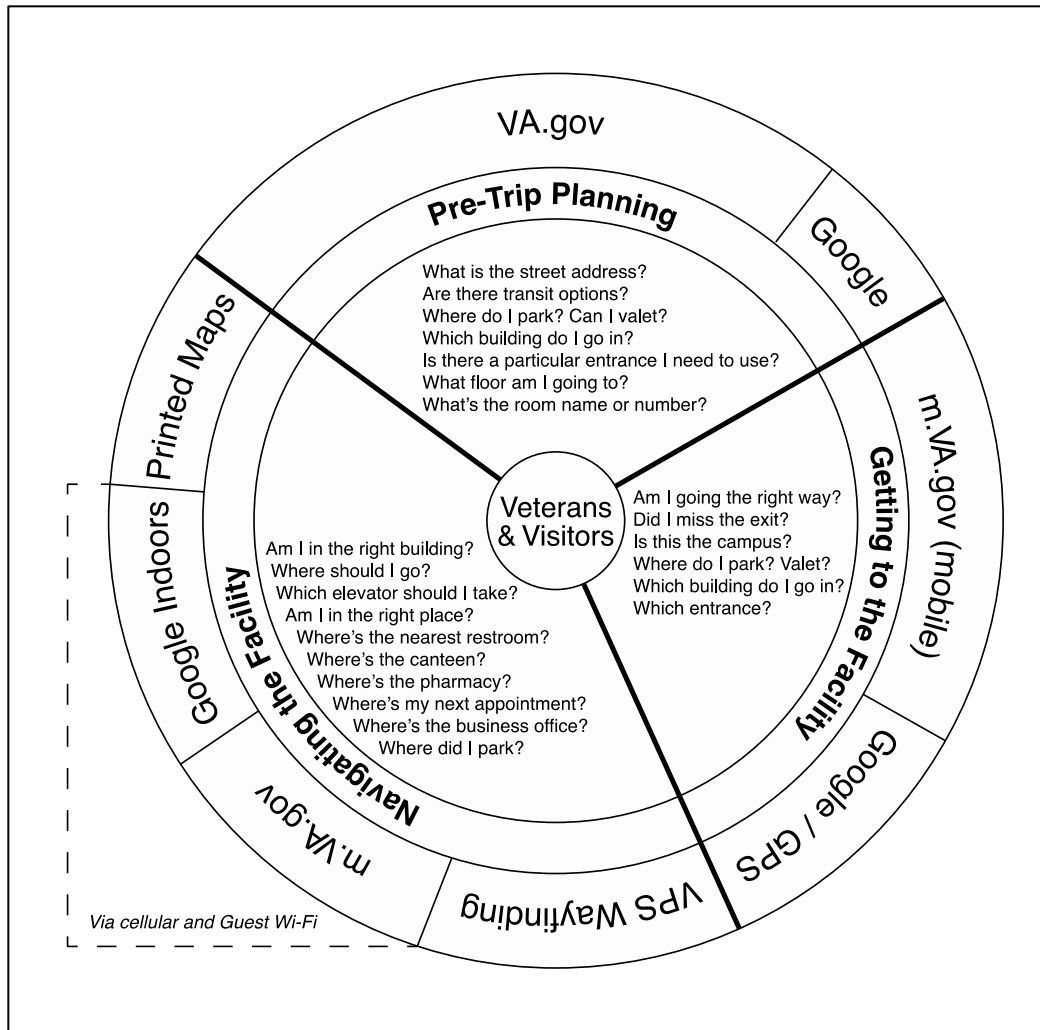


Figure 4. Solution Strategy Model

The Model is a framework to provide structured recommendations at a glance. Detailed recommendations tied to each “slice” of the pie follow. The solution strategies have been categorized as:

- Platform Strategies address the systems required to deliver wayfinding information and their integration and expansion points.
- Design Strategies address planning, usability, and lists of recommended features from the visitor’s point of view.
- Operational Strategies address recommendations on the roles, processes, and tools to maintain the system.

It is important to note that this Model represents technologies, including the web, mobile devices, and self-service kiosks that are in use today and will continue to be vital wayfinding tools for the next five years. The Model may be revised over time to include emerging technologies as they gain traction in the marketplace and among VA visitor demographics.

The Model divides the visitor's journey into three sections, pre-trip planning, getting to the facility, and navigating the facility.

2.2.1 Pre-Trip Planning

Today, the "Locations" section of VA.gov for medical centers and clinics offers street addresses and, in some cases, driving directions and other details for VHA facilities. The recommendation is to expand the information to answer all of the most frequently-asked questions for every facility.

The NCA website "Locations" provides a map to all National Cemeteries with the name of the cemetery by state and the street address, with directions from the nearest airport. The National Gravesite Locator provides the Veteran's name, branch of service, rank, dates of birth and death, name and location of cemetery, and the location of the burial site shown on a printable map.

As noted in the Integrated Wayfinding Experience Model (figure 2), most people who look for directions online start with Google (83 percent in December 2013), so it is important that Google's location information for VA facilities, beginning with the each facility's street address, is accurate. As a byproduct of the Google Indoors initiative, street addresses will be checked for accuracy.

2.2.2 Getting to the Facility

Today, VA.gov is not optimized for mobile devices, meaning that it is hard to navigate and read the website from a smartphone or tablet. The site displays the same content in the same format, regardless of the size of the screen of the device that is accessing it. A responsive website serves content and tools in the best format for each device that accesses it. VA.gov is scheduled to re-launch as a responsively-designed site in August 2014. At that time, visitors will be able to access and refer to location information more easily.

2.2.3 Navigating the Facility

Once on site, the visitor should have access to wayfinding information in various media. The VPS system provides a platform to support on-site wayfinding touchscreens, relevant wayfinding information embedded in check-in kiosks, and other devices, such as tablets, as the platform offerings grow. If the facility has adequate cellular coverage, or even better, a guest wireless network, the visitor can continue to use his or her smartphone indoors to access VA.gov and Google Indoors. Several VA Medical Centers have chosen to establish guest wireless networks using facility funds; VA does not have a national guest wireless strategy. For complicated campuses or facilities, a printed map should be available at all entrance lobbies and major information desks.

2.3 Recommended Strategies

The following strategies emphasize the "what" not the "how" for achieving the integrated solution outlined in the Solution Strategy Model (figure 4). However, some thoughts on implementation have been included to help visualize how the strategy may be employed.

In other words, there are multiple ways to achieve these recommendations, and the strategies below outline the major factors associated with designing, housing, and delivering wayfinding information. In particular, the platform and operational strategies should be interpreted as proposals for further exploration to determine their viability within VA infrastructure, administration, and planning.

2.3.1 Platform Strategies

The recommendations begin with platform strategies, as derived from **Guiding Principle 5—Use cost-effective high-impact solutions, leveraging and extending assets and platforms as possible**. In this document, a platform is defined as a software environment or system that delivers information to visitors and provides management tools for VA staff to support the offering.

None of the recommendations is based on the adoption or procurement of a new platform. The assessment of this team is that current VA platforms can efficiently and effectively support the needs of an integrated wayfinding system.

Platform Strategy 1: Expand the current “Locations and Directions” sections of VHA facility pages, NCA locations, and VBA offices on VA.gov to offer enhanced wayfinding information.

VA has implemented a template approach to organizing information on all of its facilities. As described in the Related VA Initiatives section, VHA Media Management manages the national and local content for VA.gov and has designed a series of templates for each VHA, VBA, and NCA facility to publish information. Representatives at the facility level, such as the Public Affairs Officer at the VAMC, manage the content on their pages, including the Locations section.

Today, the Locations section offers driving directions with the option to generate customized directions and a map from any street address to the facility’s street address via a Google Maps link. Links to see the facility’s location on Yahoo, MapQuest, and Google are also provided.

An effort could be defined to expand the wayfinding information provided on the Locations page. All facility website Location pages should include a site plan noting entrances and major destinations. The map could be a Google Indoors map (or Google’s standard map, if the facility hasn’t been mapped) to the facility. Options could be provided to generate customized driving or transit, parking, and walking directions to any destination at that facility. (The facility web pages list Healthcare Services provided at each facility; those could also have links to generate complete direction sets, using standard nomenclature.) All VBA, VHA, and NCA facilities have Location pages, which makes this solution helpful for all VA visitors.

Additional functions to email, text, or print direction sets should be accessible from every set of directions.

As the Solutions Model indicates, there is significant value in making VA.gov a more helpful tool for smartphone and tablet users. Twenty-one percent of traffic to VA.gov comes from

smartphones and tablets. When the site is responsively designed in August 2014, all visitors will essentially have a visitor guide to the complete network of VA facilities in their pockets.

Platform Strategy 2: Build wayfinding functionality into the VPS platform, including an enhanced wayfinding module of VetLink and wayfinding touchscreens for main lobbies of complex VA Medical Centers.

As described in more detail in the Related VA Initiatives section, VPS was designed as a platform for self-service transactions at VHA facilities. It debuted in May 2011 with VetLink kiosks, and their main function is patient check-in.

Since inception, the VPS charter has been “device-agnostic” so that the platform can run and manage any device, as needs are identified. Aside from the free-standing and desk-mounted VetLink kiosks, the VPS system currently supports many different form-factors, including 42-inch touchscreens.

The process is available by which new functions, such as facility/campus wayfinding, can be defined, along with user interface and content requirements. With more than 3,315 devices in use in VAMCs and CBOCs, the methodologies for deployment and operations have been honed and codified.

Platform Strategy 3: In recognition that the optimal navigational device is the smartphone, extend and improve cellular service and guest Wi-Fi networks at VA Medical Centers.

As explained in the first Guiding Principle’s Best Practice: **Mobile has emerged as the primary wayfinding platform**, it is clear that the smartphone has become the personal wayfinding device. It is an aid to visitors in their journey to facilities. But once inside, when cellular service is low or non-existent, and there is no guest Wi-Fi network, the smartphone is of no help.

There are many reasons to pursue a guest Wi-Fi initiative. Significantly, there are therapeutic benefits for patients in long-term confinement at VA Medical Centers, as identified by Dr. James Breeling, VHA Office of Research and Development, Bioinformatics, in a proposal for a national Veterans guest Internet access (VGIA) initiative.

Guest Wi-Fi may also be a key driver of patient satisfaction and, perhaps, even a point of comparison as Veterans have more choices whether they seek care within VA or in the new options offered by the Affordable Care Act.

Some VAMCs offer guest Wi-Fi today, and it is being considered by many others. As business cases are drafted, it is important to note the benefits of delivering real-time wayfinding information via Wi-Fi to visitors. However, a major constraint is that VAMCs must finance this provision at the facility level because no national funding is available.

Indoor positioning technology offers the ability to locate the position of a user’s smartphone indoors and deliver relevant information to that user based on his or her position. The location of the smartphone can be pinpointed by triangulating nearby Wi-Fi signals or by more sophisticated sensors either in the phone or embedded in the environment.

Cisco, the market leader in Wi-Fi networking hardware and software, is embedding location intelligence in its access points (also known as wireless routers) so that apps and websites can identify the position of the user indoors and deliver contextual information (such as nearby restrooms and amenities or directions to a destination), regardless of whether the user's smartphone is on the Wi-Fi network.

Cisco's is a more proprietary approach than Google's. Cisco is embedding location information in the Cisco access point to be used by apps designed specifically to access and process that data. Google's strategy is to sense any wireless signal and record where destinations are according to the user's position as identified by surrounding wireless signals.

Platform Strategy 4: Augment efforts of the Google Indoors initiative to map all VA facilities.

By every measure, Google is the market leader in navigation. Google Maps for Mobile is the world's most popular app for smartphones, with over 54 percent of global smartphone owners using it at least once during the month of August 2013. Ninety-one percent of all U.S. smartphones have access to Google Maps. From Street View to Google Earth, Google spends millions of dollars updating and growing its mapping data. Google launched Indoor Maps in 2011, and an estimated 25,000 facilities all over the world have been mapped, with malls, airports, and museums in the lead. Google Indoors is accessible by any device that can access Google Maps.

VA is participating in Google Indoors today, as discussed in the Related VA Initiative section.

Google's Indoor initiative is composed of two parts, (1) publishing indoor floor plans with labeled destinations aligned to Google's base maps and (2) walking the space with Google's proprietary tools to provide indoor location positioning on those maps (linking the virtual maps to the physical environment via detection of wireless signals' strength and location). The destinations on the indoor maps are part of Google's database and are searchable, meaning that you can find directions from your location at the hospital's entrance lobby on Floor 1 to Dialysis on Floor 3. (Note that destination names would best be standardized through a VA-wide nomenclature initiative.)

If the facility has any visible Wi-Fi network (publicly accessible or staff-facing, secure or open), then Google will survey the facility, using specialized software that records the strength and location of access points to "stitch" the static floor plan to locations in physical space.

Google Indoors works best when (1) the facility has given Google the floor plans to publish and (2) the facility has a Wi-Fi network of any kind (public/private, secure/open) and (3) the Google team has mapped that facility to record destination locations based on sensing the Wi-Fi signals. When all three are complete, people can see the "You are here" blue dot on the floor plan on Google Maps and can navigate easily to any destination in the building, checking their progress on the map.

If Google has published the floor plans, as in (1) above, then people can see the floor plan on Google Maps and can use the map to navigate, even though the map does not show the "You are here" blue dot. In other words, people can refer to the indoor map to navigate, but

cannot see where they are on the map or check their progress toward their destination. In this case, it does not matter whether the facility has a Wi-Fi network.

Other companies are pursuing the “You are here” functionality indoors, but rely on additional network infrastructure such as intelligent access points that track location or installation of Bluetooth/iBeacon sensors.

Interior destinations labeled on Google Indoors maps are also searchable from Google’s main search engine (www.google.com). For example, if “Radiology” is a labeled destination on the VA Pittsburgh H. J. Heinz Campus building floor plan, then a visitor to Google search will find “Radiology, VA Pittsburgh H. J. Heinz Campus” as a search result with a map to that destination. When a facility has been mapped, Google will be able to offer more specific directions to destinations within that facility.

Knowledge of Google Indoors is relatively low in the marketplace, meaning that Google Maps users only stumble upon it when they happen to search for a destination that has indoor maps. As more and more locations have indoor maps, more people will be exposed to the feature.

Google Indoors is now part of the developer toolkit, or API, that Google makes available to third-party developers to make their own custom applications based on the Google Map platform. That means that the functionality demonstrated on the UCSF and MD Anderson websites (customized driving, transit, parking, walking directions to an interior destination) can be developed on VA.gov or in the Connected Health app, MyHealth eVet.

The recommendation to continue to pursue and expand this initiative is based on:

- Google’s dominance in mapping as the primary navigational tool.
- Functionality provided by Google Indoors, including “You are here.”
- Capability to embed Google Indoor maps in VA.gov location pages.

2.3.2 Design Strategies

Design strategies identify the major usability requirements for wayfinding tools. While tuned for wayfinding technology tools, many of these design strategies may be applied to more pervasive tools, such as printed communications.

Design Strategy 1: For each complex facility, one map should be designed and published in all applicable wayfinding tools, including printed maps, visitor guides, website, on-site touchscreens, and on-site wayfinding signage.

As stated in the first Guiding Principle’s Best Practice: **Verbal directions are not enough—people need a guide.** Probably the most effective portable wayfinding tool is a printed map.

Recommendations for map design are described in the VA Signage Design Guide section on “You are here” Maps and Directories.

Whether they are produced by in-house designers or by outside consultants, printed maps orient visitors and help them form a mental model of a complicated environment.

Maps do need to be updated as facilities change and grow and should be overseen by the wayfinding manager as described in Operational Strategies below.

Design Strategy 2: All wayfinding technology tools should meet the same standards of accessibility (ABA/ADA Specifications and Section 508) that VA.gov and VetLink currently attain and that the VA Signage Design Guide specifies.

For more information, see [section508.va.gov](#) and the VA Signage Design Guide.

Design Strategy 3: On-site wayfinding touchscreens (as built on the VPS or NCA platforms) should conform to a checklist of usability requirements.

The following checklist is based on the Best Practices from the Guiding Principles above, site visit observation, and previously-performed user research.

1. For wayfinding, large-format touchscreens (32-inches and greater) work best to display maps, directory information, and menus at sizes that are easy to read.
2. Wayfinding touchscreens are best placed where visitors need wayfinding guidance most, such as entrance lobbies and elevator lobbies.
3. Static signage such as a map and level directory should flank every wayfinding touchscreen to create a “wayfinding information station.”
4. When possible wayfinding touchscreens should be positioned near information desks or other places where staff members or volunteers can help people use them and monitor whether they are functioning properly. Staff should be trained to help visually impaired people access wayfinding information.
5. Each touchscreen needs an “attract mode” or screensaver to broadcast its functionality—“Get directions here” or “Find gravesites here”—to passersby.
6. When positioned in portrait mode, touchscreens are more usable for people of various heights and for those in wheelchairs.
7. The user interface should be simple and uncluttered, with a prominent function to search for a destination or browse through a list of destinations.
8. Touchscreens should use common gestures; for example, tap a button to activate it and pinch and stretch to zoom.
9. Buttons to change language or to move the active area of the screen down for increased usability by those in wheelchairs should be prominently placed.
10. On-screen maps should be oriented to the user’s perspective (also known as “heads-up” maps) and highlight the user’s current location.
11. Directions should be provided as step-by-step directions and a map, highlighted and, preferably, animated to show the journey from start to finish.
12. Touchscreens should offer the ability to text or email direction sets to visitors. Research has shown that the ability to print customized directions at a touchscreen is welcomed by visitors; however, printers (jamming or becoming inoperable) have been problematic in many installations. NCA kiosk printers and VetLink kiosk printers operate well, perhaps because operational policies have been put in place.

Design Strategy 4: To ensure the utility and adoption of wayfinding technology tools, it is helpful to begin the design of each offering with participatory design sessions with Veterans and visitors.

The aim of participatory design is to involve all stakeholders—in this case, Veterans and their families and caregivers, VA staff, and volunteers—in the beginning phases of the design process to support their needs and expectations in the final offering. For example, VA Palo Alto Health Care System calls on their Veteran and Family Advisory Council to participate in planning exercises for new projects.

It is important to elicit the input from various user groups, such as aging Veterans, those whose first language is not English, and those with limited mobility to ensure that wayfinding tools meet their needs.

The outcomes of participatory design sessions are often illuminating. If one were held to further define the checklist of usability requirements for touchscreens, perhaps additional requirements would be discovered, more finely tuning the tool to the specific needs of Veterans.

Design Strategy 5: All wayfinding technology tools should provide information in the major languages of the facility's visitors.

Perhaps the greatest advantage of technology-based wayfinding information over its traditional counterparts is that technology offers the capability to develop and deliver content in multiple languages. Signs become unreadable when each message is presented in more than one or two languages, but a visitor to a website or using a touchscreen can simply click a button to translate its content to their preferred language.

Providing wayfinding content in multiple languages does add to the operational efforts required to maintain the system. For example, a content management system must track each destination and its multiple translations. As described in the second Guiding Principle's Best Practice above, professional interpreters and translators should be consulted to ensure accuracy.

2.3.3 Operational Strategies

Operational strategies identify recommended procedures for supporting the integrated wayfinding system and its technology components.

Operational Strategy 1: Adopt and communicate a standard nomenclature of healthcare services and destinations to be used by all VHA facilities and in all wayfinding information.

This strategy addresses **Guiding Principle 2—Maintain consistent nomenclature across all wayfinding tools**. A facility must be internally consistent in its use of language, but a more holistic and efficient approach would be to employ standard nomenclature across all VA facilities. In that way, a Veteran who moves across the country from Atlanta to Sacramento knows his appointment at his new VAMC will be at "Prosthetics/Orthotics," same as it was at the Atlanta VAMC.

Efforts to standardize naming of clinical services are underway, including recommendations from VISN 11 to the VHA Central Office program officials. As an official nomenclature evolves, it should be used as a companion to the VA Signage Design Guide in developing all wayfinding content.

Operational Strategy 2: Define the role of “wayfinding manager” at all VAMCs and provide tools for those responsible to keep the wayfinding information up to date.

This strategy is directly from the sixth Guiding Principle’s Best Practice: **Leverage currently-defined duties and consolidate similar responsibilities into a wayfinding manager role.**

Although how these roles are identified and staffed is beyond the scope of this report, the requirement that resources be committed to manage the wayfinding system on a regular basis is vital to sustaining a useful system.

The types of responsibilities that may be listed as part of a wayfinding manager’s role are:

- Identify wayfinding changes due to construction and renovation projects and department relocations.
- Keep the interior and exterior wayfinding signage up to date.
- Manage a centralized database to store all wayfinding information and ensure that it is published accurately to the website and other tools.
- Monitor usage of wayfinding technology tools, such as website and on-site touchscreens.
- Oversee design and production of printed maps, room identification signs, and other regulatory and wayfinding signs.
- Serve as “product manager” of wayfinding technology at the facility, advancing the integrated wayfinding solution roadmap.

Operational Strategy 3: Train staff and volunteers how to give directions and how to use all wayfinding tools.

This strategy is directly from the sixth Guiding Principle’s Best Practice: **Train front-line staff how to give directions and how to use wayfinding tools.**

Volunteers, registration clerks, and other front-line staff must be conversant in destination nomenclature and the logic of the wayfinding system. They must be able to assist Veterans and visitors in navigating the facility, offering maps and guides when available. A wayfinding module may be added to existing orientation and ongoing training programs.

Operational Strategy 4: Every wayfinding technology tool should be covered by a service agreement, and hardware refresh plans should be implemented for on-site tools.

Hardware requires perpetual support. Just as desktop computers are maintained on a regular basis by IT support staff, embedded touchscreens and the PCs or media players that run them must be maintained. Service agreements, whether by in-house arrangement or by outsourced contracts, are mandatory when it comes to on-site wayfinding technology.

Hardware also requires a replacement strategy. Every hardware type has an expected lifecycle that can be documented in budgeting and operational plans.

Operational Strategy 5: Discourage the procurement of proprietary wayfinding technology such as touchscreens, kiosks, and apps by individual VA facilities.

As the fifth Guiding Principle's Best Practice states: **Stand-alone, proprietary wayfinding kiosks and apps are not viable solutions for large-scale organizations comparable to VA.**

It should be clear from the platform recommendations above that VA's current enterprise-level systems VA.gov and VPS offer the most robust and efficient path to delivering wayfinding information on the web and on site.

Funds spent procuring single-facility wayfinding devices would be better spent contributing toward the solution strategy outlined previously in this document.

2.4 Gauging the Complexity of an Environment

The answers to the following questions indicate the relative complexity of a given campus, site, or building. Generally, the more of these attributes a facility has, the more complicated the visitor's journey becomes, and the more helpful an integrated wayfinding system will be.

1. Does the facility have:
 - Multiple buildings?
 - Multiple self-parking options?
 - Multiple campus entries?
 - Multiple transit stops?
2. Does the main building have:
 - Multiple public entrances?
 - More than one public elevator bank?
 - If so, do the elevators serve different floors/areas?
 - More than two wings?
3. Is there a change in grade in public areas? For example, are there entrances on more than one level, such as Ground Floor and Floor 1?
4. If more than one entrance, is the majority of parking closest to the main entrance?
5. Are distinctions between public areas and back-of-house areas clearly defined?
6. Are there frequent periods of construction and renovation inside or outside the facility?
7. Have temporary signs and routes become permanent over time?
8. In the main lobby, can visitors get oriented and find destination information?

These indicators may uncover specific wayfinding challenge points as well as provide an overall picture of how simple or how complicated a given campus, site, or building may be. Once the level of complexity is evaluated, the value of wayfinding technology in that particular environment can be assessed.

To evaluate whether a facility may need to refresh its interior or exterior signage program, see VA Signage Design Guide, (<http://www.cfm.va.gov/til/spclRqmts.asp#SIGN>).

3. Methodology for Pilot Projects

Before committing to a full deployment of new technology, it is prudent to undertake a pilot or series of pilot projects. Pilots are narrowly focused implementations, either defined by a limited scope of features or a limited population of users.

The purpose of a pilot is to test:

- Hypotheses about user behavior.
- Proposed features and/or user interaction models.
- System integration points.
- Hardware form-factors and Human Computer Interaction (HCI) factors.
- Maintenance processes and tools to keep content up to date.
- Logistical and operational procedures to support the system.
- User adoption of the proposed solutions.

The integrated wayfinding solutions described in the previous section include two kinds of technology tools: web-based tools available anywhere (VA.gov and Google Indoors) and on-site tools at facilities (VetLink kiosks and VPS wayfinding touchscreens.)

For pilots of on-site tools, the following recommendations apply.

1. Select a range of facility sizes across VA to learn about implementation and operations requirements for different types of facilities; it is important to pilot in more than one facility and in more than one region. Pilots in each CFM region would help promote awareness of wayfinding strategies and benefits.
2. Select facilities that have local advocacy for the project at the leadership level; consider a process where facility leaders can request to be involved in the pilot or are invited by their leadership.
3. Select facilities that have deployed the VPS VetLink kiosks, because the pilot will test enhancements to that system.
4. Facilities that have implemented the signage elements and wayfinding systems described in the VA Signage Design Guide are preferred, because the findings from the pilot will be based on VA recommended practices.
5. Facilities that have recently installed new signage programs (interior or exterior) are good candidates for the pilot study.
6. Facilities that are participating in the Google Indoors initiative have shown interest in wayfinding technology and improving their wayfinding experience; a pilot at a facility that has been mapped by Google would take advantage of the destination collection and mapping efforts of the initiative.
7. At least one pilot facility should be an older, more complex VAMC, an example of VA's most severe navigation and wayfinding challenges.
8. At least one location should be new major construction or major lease space to demonstrate how on-site tools can be incorporated in the planning and design process.

(Leased space may present obstacles to the pilot project that should be investigated prior to selection.)

9. At least one pilot location should be a medical facility with a co-located VBA office.
10. In general, the pilot study seeks facilities where there is leadership commitment to the staff's involvement in the project and an understanding of the additional responsibilities defined in the "wayfinding manager" role.
11. To test the role of smartphone-based tools, such as Google Indoors, and enhanced information on the VA.gov website, a guest Wi-Fi network and good cellular service are necessary.

4. Recommendations for the VA Signage Design Guide

The approved findings and recommendations from this report will be incorporated into the next update to the VA Signage Design Guide. The following excerpt from the SDG Table of Contents shows the locations where revisions will be made.

Section 01-Introduction, Acknowledgments & Design Elements

Revise Introduction to note addition of Wayfinding Technology

Revise Acknowledgments to add fd2s

Section 02-Integrated Wayfinding and Recommended Technologies (new section)

A. Need a New Wayfinding System Incorporating Technology?

B. The Integrated Wayfinding Experience Model

C. Benefits of Wayfinding Technology for All VA Facilities

D. Wayfinding Technology Strategies

- Guiding Principles and Best Practices
- Solution Strategy Model
- Recommended Strategies

Section 13-Glossary

Revise to include new wayfinding and technology terms

Appendix

Revise Emerging Technologies

Appendix

Glossary of Terms

AIGA

Founded as the “American Institute of Graphic Arts,” this professional organization publishes a set of 50 symbols that have been designed, developed, and tested for use in signage and wayfinding applications. See: <http://www.aiga.org/symbol-signs/>.

Barcode

A machine-readable code that carries information that can be read by a barcode scanner or reader using a lens and light sensor. Codes can be the Universal Product Code (UPC) symbol, such as those found on supermarket items, a quick response (QR) code, or other systematic markings that can be read by a scanner or reader.

Google Indoors

A product of Google, Google Indoors offers users interior floor plans that they can navigate in the same way as Google Maps. It is a relatively new product and has been integrated into Google Maps for desktop and mobile. See:

<http://www.google.com/maps/about/partners/indoormaps/>

Global Positioning System (GPS)

The satellite navigation system that provides accurate positioning of devices that receive its signals. GPS works best when the receiving device, such as a smartphone or GPS receiver, has unobstructed sightlines to three or more satellites; therefore, it does not work indoors. Most, if not all, smartphones have GPS capabilities.

International Organization for Standards (ISO)

The developer of standards, such as the symbol sets for safety signs and public information. These symbols have been ratified and used all over the world and are recommended for use in wayfinding and signage. See: http://www.iso.org/iso/home/store/graphical_symbols.htm

Mobile app

An application built to run on a smartphone. Apps are produced for a specific operating system, such as iOS, Android, or Windows phones. They are downloaded from an online store and installed on the user’s phone.

Mobile device

Any device such as a cell phone, smartphone, or tablet that is mobile enough for the user to take with them and that has access to the Internet via cellular or wireless network.

Nomenclature

The system of names and symbols that are used in a particular field. In this report, nomenclature refers to destination names (such as “Blood Lab,” “Prosthetics/Orthotics,” or “VA Pittsburgh H. J. Heinz Campus”) that should be used consistently throughout an environment or an organization.

QR Code

QR in the name stands for quick response. See Barcode.

Smartphone

A cellphone with Internet access and built-in applications, such as a web browser or email client.

Touchscreen

A digital screen that the user can interact with by touching the screen. Most smartphones have touchscreens and many digital kiosks, such as ATMs and gas pumps, have touchscreens.

Wi-Fi

Local network wireless technology. Most mobile devices and computers can access Wi-Fi networks.