The Urban Transportation Center at the University of Illinois at Chicago

September 2016

The Illinois One-Click Transportation Resource Center Final Report

Lise Dirks, Principal Investigator
P.S. Sriraj, Research Associate Professor
Joseph Irwin Harris, Research Associate
Shreya Ghosh, Research Assistant

Presented to
The Illinois Department of Transportation
ACKNOWLEDGMENTS

The Federal Transit Administration and the Illinois Department of Transportation respectively provided funding for this study through the Veterans Transportation and Community Livability Initiative and matching state funds.

The study team is profoundly grateful for the services and sacrifices of America’s veterans and would like to thank them.

The research team would also like to thank the following Illinois Department of Transportation employees for their guidance and support for this project: Dave Spacek, former Deputy Director of the Transit Division; John Marrella, Bureau Chief of Operations; Chuck Abraham, Manager of Program Support (Planning); Karen Strell, Downstate Public Transit Manager; John Edmondson, former Section Chief, Service Coordination and Compliance; and Mike Healy, CVP Program Manager.

We would also like to thank the following extended Tranpro and Veterans Transportation and Community Livability Initiative staff at the University of Illinois for their dedicated efforts: Research Associates Lauren Nolan and Jordan Snow, and Research Assistants Aswin Antony, Tanay Chowdhury, Richard McChane, Adithya Nandakumar, Vimalkumar Patel, Prakash Putta, Gayathri Ravichandran, Venkata Sambasivan and Suriya Sundararaj.

Additional thanks go to Illinois Human Service Transportation Planning Coordinators, Public Transportation Providers, and Veterans Assistance Center staff for their contributions and insights.

The views within this document are those of the authors alone.
# Table of Contents

Executive Summary........................................................................................................................................... 3

Introduction...................................................................................................................................................... 4

This Report’s Organization................................................................................................................................. 5

Section 1: Background..................................................................................................................................... 6

Disabled, Elderly and Low-income Cohorts for Veterans........................................................................... 6
The U. S. Department of Veteran Affairs Veterans Transportation Program...................................... 8
The Veterans Transportation and Community Livability Initiative Program........................................... 10
State Veteran Affairs Departments.............................................................................................................. 11
Illinois: Veterans and Coordinated Human Service Transportation Planning.................................. 11

Section 2: The IDOT/Urban Transportation Center Veterans Transportation and Community Livability Initiative Grant............................................................................................................. 19

Veteran’s Transportation within Illinois...................................................................................................... 19
Needs Assessment............................................................................................................................................ 23
Methodology..................................................................................................................................................... 23
Cognitive Maps................................................................................................................................................ 24
Findings............................................................................................................................................................ 24
The One-Click Transportation Resource Center.......................................................................................... 28
Server System................................................................................................................................................ 28
Website Design............................................................................................................................................... 29
Operations and Future Work......................................................................................................................... 31

Appendix A:
Server System to Support the Tranpro IMS and the
IDOT/Urban Transportation Center Veterans Transportation and
Community Livability Initiative Project......................................................................................................... 33

Appendix B:
User’s Guide to the One-Click
Transportation Resource Center .................................................................................................................... 38

References.......................................................................................................................................................... 50
Executive Summary

Over 22 million U.S. veterans live in America. This population is expected to increase as older veterans live longer and as active members of the armed forces leave the service. Forty percent (40%) of these veterans are over 65 years old; which surpasses the percentage of senior citizens in the general public.

Veterans have higher disability rates and more severe disabilities than others. The number of disabled post-911 veterans will likely increase more than 50% between 2013 and 2018. Unemployment among young disabled veterans remains high.

Federal, state and local governments have initiated policies and programs to meet post-war veterans’ needs, including community services, job-training, and medical care. They also have instituted programs to address the needs of aging veterans, who may be isolated because of diminishing volunteer transportation networks. To better serve these veterans, federal, state, and local governments have increasingly been incorporating public transportation into these programs.

The Federal Transit Administration funded the Veterans Transportation and Community Livability Initiative (VTCLI) which was led by the National Coordinating Council on Access and Mobility. The goal of this initiative was to address the transportation needs of veterans and their families by promoting coordinated transportation services and disseminating information about them. The program funded “One-Click/One-Call” centers to connect veterans and their families with all available transportation options. These centers are designed to provide information on transportation services, and where feasible, to assist in scheduling and dispatching coordinated transportation services. “One-Click/One-Call” centers seek to address all transportation needs, including access to veterans’ services, community services and amenities, job access, education, child care, and social and recreational activities.

The Illinois Department of Transportation (IDOT) was awarded a Veterans Transportation and Community Livability Initiative grant with the Urban Transportation Center (UTC) at the University of Illinois Chicago as sub-recipient. They used this grant to create a “One-Click Transportation Resource Center” to inform Illinois veterans and their families about existing transportation services throughout Illinois.

The Urban Transportation Center built upon the existing Tranpro Information Management System, which houses the Illinois Public and Specialized Transportation Provider Inventory. They incorporated the Illinois Bus Network project, a trip planner for accessing commercial bus and rail operators, as well as veterans’ transportation services in Illinois that the Veterans Administration and the Illinois Veterans Assistance Commissions provide. They also included car-sharing and ride-sharing options. The “One-Click Transportation Resource Center” website therefore offers the user transportation solutions based on location; type of service; and veteran, senior, and/or disability status.
Introduction

The United States Department of Veterans Affairs estimated that approximately 22 million veterans lived in the United States in 2014. Nine percent of these veterans were women and approximately 23% were minorities (11% African-American, 9% Hispanic, and 3% other minority).

One million of these veterans served in World War II; 1.9 million served in the Korean War; 5.5 million served during peacetime; 7.2 million served in the Vietnam War; and 7.0 million served in the Gulf War. Many of these veterans who fought overseas faced challenges that were unique to their war such as widespread use of napalm in the Vietnam War and widespread use of improvised explosive devices since the first Gulf War. The resulting injuries from each of these destructive weapons has required innovative responses from the United States Department of Veterans Affairs.

In 2014, the United States Department of Veterans Affairs had 9.11 million veterans enrolled in its health care system. This is up from 8.1 in 2009. Medical advances, better on-site medical care, and improved means of evacuation leading to higher survival rates are a factor in this increase.

The United States Department of Veterans Affairs currently operates 144 hospitals, 300 Veterans Administration Vets Centers, and 1,203 Veterans Administration Outpatient Sites nationwide. It spent $64.7M to operate these facilities in FY 2015, which is up approximately 47% from FY 2009 ($44M) and is more than three times greater than the $19.3M spent in FY 2000—(U.S. Department of Veteran Affairs).

The Department of Veterans Affairs reimburses veterans for their travel expenses and operates several “special mode” transportation programs to ensure veterans can reach these facilities. The increase in Veterans Administration enrollment has resulted in increased demand for access to Veterans Administration medical facilities and has escalated costs of maintaining the traditional travel reimbursement and “special mode” transportation programs. The Veterans Administration has therefore introduced the Veterans Transportation System and the Highly Rural Transportation Grants Program to help reduce costs while promoting service efficiency and transportation access for veterans.

States and local governments are also taking steps to meet the needs of their growing veteran populations, providing services such as job training, housing, and transportation, thus opening opportunities for going beyond improving access to Veterans Administration services. They support newly returning veterans transitioning back into civilian life.

The National Coordinating Council on Access and Mobility has led a multi-agency effort to establish the Veterans Transportation and Community Livability Initiative in order to help veterans and their families to access coordinated transportation services to meet all of their
needs, including access to veterans’ services, community services and amenities, employment, education, child care, and social and recreational activities. The “One-Click/One-Call” approach will bring all of the transportation options into a single resource center to provide solutions for veterans needing transportation services. Many state-level Veterans Transportation and Community Livability Initiative grantees have incorporated veterans’ transportation services into pre-existing 511 and 311 services. Other regional grantees have incorporated coordinated services into regional call centers, either as enhancements or as a new service.

The Federal Transit Administration awarded the Illinois Department of Transportation (IDOT) a first-round Veterans Transportation and Community Livability Initiative grant with the Urban Transportation Center (UTC) at the University of Illinois at Chicago as a sub-recipient. They used this grant to create a single repository of information, a “One-Click Transportation Resource Center”, to inform Illinois veterans and their families about existing transportation services.

Illinois has an ongoing regional coordinated transportation and mobility management program and tools that aggregate regional transportation information to the state level. This made it practical to create a state-level resource center that individuals, veterans’ service providers, mobility managers, public and specialized transportation providers and regional call centers throughout Illinois could use.

This report details some of the transportation issues veterans face and describes how this project seeks to address them.

This Report’s Organization

The study team first describes the characteristics and transportation needs of veterans living within the United States and the medical and transportation services the U.S. Veterans Administration provides. They follow a similar process for Illinois.

In the second half of this report, the study team describes the IDOT/Urban Transportation Center’s Veterans Transportation and Community Livability Initiative Project. They describe veterans transportation services in Illinois, present the results of a needs assessment exercise to understand stakeholder perceptions of veteran needs, and detail information about the One-click Transportation Resource Center. They conclude with a discussion of potential future work to enhance transportation coordination efforts regarding veterans’ needs.

Appendix A describes the hardware and software system the study team used to host this project. Appendix B provides a user’s guide to the One-Click Transportation Resource Center.
Section 1: Background

Disabled, Elderly, and Low-Income Cohorts for Veterans

Approximately 22 million veterans live in the United States; this population is growing given the wars in Afghanistan and Iraq. These veterans require special services to meet their post-war needs, including community support, job-training, and medical care. Successful reintegration into civilian life depends on veterans’ abilities to access community and social amenities, housing, jobs, and veterans’ services. Transportation to provide that access and meet every day needs of veterans and their families is critical to reintegrating veterans.

Approximately 40% of all veterans are enrolled in the Veterans Administration medical system. The number of veterans enrolled in the Veterans Administration medical system increased from 8.1 million to approximately 9 million between 2009 and 2013 (Peterson, 2014; US Dept. of Vet. Affairs, Ellis et al., 2013; Burkhardt et al., 2011; Govt. Acc. Off., 2014a).

Veterans living in the United States are more likely than others to live in rural areas. Approximately 30% of veterans (or 6.6 million veterans) live in rural areas, compared with approximately 19% of the total U.S. population (Montgomery, 2012). Approximately 41% or 3.7 million of these rural veterans are enrolled in the Veterans Administration system.

Veterans Administration Medical Centers are widely dispersed throughout the U.S. and veterans living in rural areas often have to travel long distances to access these centers. Therefore, most transportation services for veterans are designed to provide access to these and other related medical facilities. The rural component and wide spatial dispersion of both veterans and VA medical centers create challenges to providing those services. The large percentage of veterans residing in rural areas also adds a dimension of difficulty in accessing other necessities and amenities for veterans who may have special transportation needs due to age, disability, or income.

Disability rates for veterans are higher than those for non-veterans and the severity of those disabilities is greater. Among veterans, disability rates for recently-discharged veterans are much higher than those for veterans serving before 2001. The service-related disability rate for recently discharged veterans serving after 2001 is 26%, compared to 14% for all veterans (Rall & Wheet, 2013; Peterson, 2014).

Medical advances, better on-site medical care, and improved means of evacuation have greatly increased the range of severe injuries that are now survivable, leading to greater disability rates overall for veterans. The injury to fatality ratio for younger veterans is 16:1, which is six times higher than that for Vietnam veterans (Rall & Wheet, 2013).

In spite of the increase in younger veterans, the veteran population remains substantially older
than the general population due to the number of aging World War II, Korea, and Vietnam veterans. Forty percent of all U.S. veterans are over age 65. Senior veterans have higher disability rates compared to the general population given their age and injuries, while medical advancements are increasing their expected life spans.

Veterans have experienced high unemployment rates, especially since the recent recession. These circumstances have improved with a recovering economy and targeted efforts to help younger veterans find jobs. The unemployment rate for post-9/11 veterans decreased from 8.9% to 7.7% between 2012 and 2013. By 2014, the unemployment rate for all veterans was 5.3% (Ellis et al., 2013; Emp. Situation of Vet. Summary, 2015). In rural areas, a higher percentage of veterans were unemployed; many of them were living on pensions or other limited income. Rural veterans, therefore, tended to have higher unemployment rates compared to urban veterans and rural non-veterans (Montgomery, 2012).

Veterans’ median income is higher and their poverty rate is lower than that of the general population. However, unemployment and homelessness are rising particularly for younger veterans. Veterans between 18 and 34 have higher poverty rates than those between 34 and 55.

Veterans with disabilities between 18 and 55 have a higher poverty rate than the general population of people with disabilities (Veteran Poverty Trends, 2015). The numbers of Post-9/11 disabled veterans is expected to increase more than 50% between 2013 and 2018 (Profile of Post-9/11 Veterans: 2013). This adds to the complexity of addressing veterans’ needs with respect to services, including transportation services, since the increasing younger veteran population is generating a new set of needs and priorities for services.

The population growth and geographic dispersion of veterans across the country and in rural areas present a significant mobility management issue. Special needs variables for veterans include age, disability, educational attainment, job readiness, and employment status. Successful mobility management strategies will depend on sensitivity to veteran needs, dedicated funding, efficient information dissemination, and stakeholder coordination to maximize resources, especially for those with limited access to automobiles.

Many veterans may fit into the traditional senior, disabled, and low-income target populations for specialized transportation, but their characteristics and needs are unique to their special circumstances as veterans. This necessitates creation of targeted transportation services, such as providing access to Veterans Administration services, rural transportation services, transportation for jobs, job training, and special vehicle and escort services for disabled veterans. These special transportation needs extend to veterans’ families who may also receive Veterans Administration benefits and whose mobility needs are joined with the veterans as household members.

These circumstances, along with growing numbers of younger veterans, explain the large increases in Veterans Administration enrollment and show ongoing demand for Veterans
Administration medical services in the foreseeable future. Senior veterans can, of course, take advantage of any senior services offered to the general population, but senior-focused transportation services are not necessarily designed to help veterans connect with the Veterans Administration. Senior veterans who do not drive may have a very difficult time accessing Veterans Administration services across long distances.

The U. S. Department of Veteran Affairs Veterans Transportation Program

Veterans access Veterans Health Administration and Veterans Business Administration services within twenty-one geographic regions. These regions make up the Veterans Integrated Service Network, as shown in Figure 1. They are numbered 1 through 23, except for Regions 13 and 14, which were consolidated into Region 23.

Veterans must seek services within the Veterans Integrated Service Network region where they live, unless they require special medical services only available outside of their region (Stmt. of Hon. Anthony Principi, 2002). Many veterans must travel long distances to access medical services since these regions cover large areas across multiple states. However, these distances and areas will likely increase. In 2015, the Veterans Administration proposed a plan to consolidate and reduce these regions from 21 to 18. These consolidations could increase administrative efficiencies and offer additional options for veterans.

Figure 1: Veterans Integrated Service Network Regions

Source: U.S. Department of Veteran Affairs
The Veterans Transportation Program provides several options for veterans who need transportation assistance, including the Beneficiary Travel Program, the Volunteer Transportation Network, the Veterans Transportation Service, and Highly Rural Transportation Grants. These programs and services are intended to help veterans access the 152 Veterans Administration Medical Centers, 1,400 Community-Based Outpatient Clinics, Veterans Administration staffed Outpatient Clinics and Vet Centers throughout the United States (Rall & Whee, 2013). Unlike Outpatient Clinics, local residents must staff the Community-Based Outpatient Clinics. The Vet Centers offer readjustment counseling for veterans and their families, bereavement counseling, substance abuse assessment and referral, employment assessment and referral, and benefits assistance.

The Beneficiary Travel Program
The Beneficiary Travel Program provides travel reimbursement for medical trips and “special mode” service to veterans requiring ambulance service or specially equipped vehicles. A Veterans Administration clinician will determine whether particular veterans require an ambulance or other specially equipped vehicle. In some cases, the Beneficiary Travel Program provides transportation through Veterans Administration Medical Centers.

Veterans eligible for the Beneficiary Travel Program include those seeking treatment for a service-connected injury, veterans having a service-connected injury with a 30% or more disability rating, recipients of Veterans Administration pensions, or veterans having an income at or below the Veterans Administration pension rate. In 2014, the income threshold was $31,443 for veterans with no dependents to $44,216 for veterans with four dependents (Govt. Acc. Off., 2014a; US Dept. of Vet. Affairs). The Beneficiary Travel Program’s rising costs have led the Veterans Administration to find cost-saving, efficient alternatives to reimbursement and special services.

The Volunteer Transportation Network
The Veterans Administration created the Volunteer Transportation Network to address the Beneficiary Travel Program’s limitations. The Volunteer Transportation Network lets volunteer drivers transport veterans using private, government-owned or donated vehicles. Within this network is the Disabled American Veterans who have an extensive volunteer transportation program. The Disabled American Veterans have coordinators within the major Veterans Administration Medical Centers to help arrange rides for those who need them (Burkhardt et al., 2012; Ellis et al., 2013).

The Volunteer Transportation Network is facing several critical problems. Most of their volunteer drivers are older veterans using non-wheelchair accessible vehicles (Burkhardt et al., 2011). Increased demands for this service and the great distances between veterans’ homes and Veterans Administration facilities have increasingly strained this network.

The Veterans Transportation Service
To help alleviate the transportation issues mentioned above, Congress mandated the Veterans Transportation Service and provided a funding stream of 16 million dollars in 2010 through TEA-
21. TEA-21 provided each of the Veterans Administration Medical Centers with an initial two-year grant of $225,000, two to four wheelchair accessible vehicles, and routing/scheduling software (Ellis et al., 2013).

The Veterans Transportation Service mainly provides wheelchair accessible shuttle services between Veterans Administration Medical Centers and Veterans Administration Outpatient Clinics. It also provides some wheelchair accessible demand response rides for veterans traveling to or from Veterans Administration medical facilities. Any veteran within the Veterans Administration can take this service (US Dept. of Vet. Affairs). It is designed to wean veterans off of the costly Beneficiary Travel Program. However, local guidelines, system limitations, and capacity restraints can limit their use.

Each of the Veterans Integrated Service Network regions has a transportation coordinator who oversees the Veterans Transportation Service. The scheduling/dispatching software incorporates the Veterans Transportation Service with the Disabled American Veterans Volunteer program so that both programs are coordinated within the Veterans Integrated Service Network.

The Highly Rural Transportation Grants Program
The Highly Rural Transportation Grants Program provides funds for transportation to bring veterans living in extremely rural counties to Veterans Administration Medical Centers and other facilities providing Veterans Administration care. The criteria for a “highly rural” county is fewer than seven persons per square mile. Before July 2014, the Department of Veterans Affairs awarded eight grants to 56 counties in seven states. These grants provided up to $50,000 per area and served approximately 11,000 veterans (US Dept. of Vet. Affairs). Congress renewed this program in 2015.

The Veterans Transportation and Community Livability Initiative Program

The transportation services included in the Veterans Administration system provide access to Veterans Administration medical services but do not address the other transportation needs of veterans and their families. They operate within limited service areas rather than provide access to all residents within the Veterans Integrated Service Network. Local public transportation services operate under limited service areas and specialized services target seniors, people with disabilities, and people with low-income. These services may not meet veterans’ unique needs.

The National Coordinating Council on Access and Mobility developed the Veterans Transportation and Community Livability Initiative to fund projects that coordinate and centralize access to information about available transportation services for veterans and their families. It provides direct access to services aimed at filling some of the transportation system gaps and provides veterans and families full access to available services and community amenities (Ellis et al., 2013).
Specifically, the Veterans Transportation and Community Livability Initiative Program helps communities build or expand local One-Call/One-Click Centers. These centers coordinate transportation services and/or information on these services from a central point to improve access to community services and employment. The Veterans Transportation and Community Livability Initiative can also coordinate with existing public and specialized transportation service providers, including those provided through the Veterans Transportation System to help veterans access Veterans Administration medical care.

The Federal Transit Administration funded the Veterans Transportation and Community Livability Initiative. They provided $34.6 million in grant money in the first round of funding. This amount was published in the Federal Register on 12/19/2011. They awarded 55 grants within 33 states and Guam. Subsequently, they provided a second round of funding at $29 million for 64 projects, some of which supported original grantees (Burkhardt et al., 2011; Rall & Whee, 2013; Govt. Acc. Off., 2014a)

State Veteran Affairs Departments

All 50 states and the territories of American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the Virgin Islands have a state department of Veterans Affairs, under the umbrella of the National Association of State Directors of Veterans Affairs. These departments rely on state or territorial taxes to fund their services. They provide state- or territorial- level benefits, support veterans’ homes for disabled veterans who cannot live independently, and can help veterans submit federal Veterans Administration claims. State or territory Veterans Administration departments help with such things as disability claims, health insurance, emergency funding through grants and loans, housing, job training and placement, and transportation assistance (US Dept. of Vet. Affairs).

Each State or Territory independently manages its own Veterans Affairs Department. The types of services provided vary accordingly. Veteran Service Offices are found throughout urbanized areas, and often state or territorial Veteran Affairs Departments operate at the county or comparable level within their state or territory. Rural areas may not have designated Veteran Service Offices but may have mobile offices or a Veterans Service Officer who might schedule regularly designated days for veterans at a public location. These state or territorial Veterans Administration Departments offer veterans a critical link to state or territorial resources and can help them access Federal resources and services.

Illinois: Veterans and Coordinated Human Service Transportation Planning

Illinois Coordinated Human Service Transportation Planning

In 2003, the Illinois State Legislature enacted legislation creating the Interagency Coordinating Committee on Transportation. It brought the Illinois Department of Transportation (IDOT) and multiple state human service agencies together to create a framework and platform for interagency cooperation to coordinate transportation.
Responding to a 2005 mandate for a statewide coordinated transportation plan, IDOT implemented regional coordinated planning and created Human Service Transportation Planning regions throughout Illinois. They also assigned Human Service Transportation Planning Coordinators who created the regional-level Human Service Transportation Plans. Illinois has designated regional planning offices covering 100% of its area and metropolitan planning organizations with specific staff and resources focused on human service transportation planning. This will help ensure a comprehensive State Coordinated Transportation Plan addressing all Illinois residents’ needs, even those of people in Illinois’ most rural areas.

Human Service Transportation Planning Coordinators are tasked with creating Regional Human Service Transportation Plans and with maintaining an inventory of public and human service transportation providers. They facilitate the grant application process for Federal Transit Administration human service transportation funding programs and help Section 5311 grant applicants.

The 2005 SAFETEA-LU Act increased funding levels for Formula Grants for Other than Urbanized Areas Program (Section 5311). This let Illinois grow public transit and coordinate with human service transportation providers. The Interagency Coordinating Committee on Transportation established a technical assistance program within the Illinois Rural Transit Assistance Center to help agencies prepare Section 5311 program applications. These funds provide transit for rural and small urban areas.

The Interagency Coordinating Committee created partnerships that were critical to establishing coordinated public transportation services throughout Illinois. Its Transportation Technical Assistance Program guided existing human service transportation providers through the process of qualifying and applying for Section 5311 grants. It also helped them transition from human service to public transit providers and successfully helped them to manage their grants within federal requirements. As the Section 5311 program has grown, the focus for regional Human Service Transportation Planning has shifted to mobility management and coordinating existing services.

Figure 2 shows Illinois public transit service areas outlined in red. These include services funded under the Section 5311 Program, the Downstate Operating Assistance Program and the Urbanized Area Formula Program. Section 5311 funds most of these services which cover one or more counties. Fixed route services in urbanized areas are outlined according to the ¾ mile buffer surrounding the fixed routes which defines the ADA service area. Counties highlighted in blue do not have a county-level demand response public transportation service. These include Calhoun, Christian, Greene, and Jersey Counties. Adams, Knox, and Winnebago Counties do not have county-level service, but respectively have fixed route service in Quincy (Adams), Galesburg (Knox), and Rockford (Winnebago).
The Illinois Department of Transportation excluded Veterans Transportation System services from the Human Service Transportation Planning inventories because they only target veterans and operate as shuttle services between Veterans Administration Medical Centers and clinics or home-to-Veterans Administration Medical Center services. They operate under separate funding streams from other human service transportation services and offer very little coordination opportunities. Planners often see veterans as a transportation special needs group that fits in with the general public or within senior, people with disability, or people with low-income groups. Assumptions exist that veterans' transportation services currently meet the need for accessing Veterans Administration services and that public or specialized transportation services can sufficiently meet the other needs of veterans and their families. The Veterans Transportation and Community Livability Initiative seeks to improve coordination between veterans and public and other specialized transportation services. This will help address transportation service gaps that may exist in spite of these perceptions.
Illinois Veterans and Veteran Services

According to the 2013 Five-Year American Community Survey, nearly 728,000 veterans live in Illinois, and approximately half of them, or 360,000, live outside of the Chicago area. The veteran population distribution tends to follow the total population distribution throughout Illinois. However, veterans represent higher percentages of the population outside of Chicago. Within the six-county Chicago region, veterans are approximately 6% of the population over 18 years old. Within the downstate Human Service Transportation Planning regions, the veteran population ranges from approximately 8% to over 11% of the total population, as shown in Table 1. Figure 3 shows the distribution of veterans within Illinois at the county level compared with the percentage of veterans within the population. Veterans hold higher percentages of the population in rural areas as expected, up to nearly 15% of the total county population.

Table 1: Illinois Veteran Population Within Each Human Service Transportation Planning Region (ACS 5-Year, 2013)

<table>
<thead>
<tr>
<th>Human Service Transportation Planning Region</th>
<th>Total Population Age 18 and Over</th>
<th>Veterans</th>
<th>Percent Veteran</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Service Transportation Planning Region 0</td>
<td>6,645,003</td>
<td>367,753</td>
<td>6%</td>
</tr>
<tr>
<td>Human Service Transportation Planning Region 1</td>
<td>359,093</td>
<td>32,261</td>
<td>9%</td>
</tr>
<tr>
<td>Human Service Transportation Planning Region 2</td>
<td>232,838</td>
<td>22,908</td>
<td>10%</td>
</tr>
<tr>
<td>Human Service Transportation Planning Region 3</td>
<td>379,947</td>
<td>31,054</td>
<td>8%</td>
</tr>
<tr>
<td>Human Service Transportation Planning Region 4</td>
<td>152,501</td>
<td>14,590</td>
<td>10%</td>
</tr>
<tr>
<td>Human Service Transportation Planning Region 5</td>
<td>396,020</td>
<td>35,723</td>
<td>9%</td>
</tr>
<tr>
<td>Human Service Transportation Planning Region 6</td>
<td>346,162</td>
<td>28,467</td>
<td>8%</td>
</tr>
<tr>
<td>Human Service Transportation Planning Region 7</td>
<td>294,293</td>
<td>28,152</td>
<td>10%</td>
</tr>
<tr>
<td>Human Service Transportation Planning Region 8</td>
<td>500,958</td>
<td>42,972</td>
<td>9%</td>
</tr>
<tr>
<td>Human Service Transportation Planning Region 9</td>
<td>434,971</td>
<td>44,682</td>
<td>10%</td>
</tr>
<tr>
<td>Human Service Transportation Planning Region 10</td>
<td>178,953</td>
<td>17,329</td>
<td>10%</td>
</tr>
<tr>
<td>Human Service Transportation Planning Region 11</td>
<td>550,018</td>
<td>62,028</td>
<td>11%</td>
</tr>
<tr>
<td><strong>IL Total</strong></td>
<td><strong>10,470,757</strong></td>
<td><strong>727,919</strong></td>
<td><strong>7%</strong></td>
</tr>
</tbody>
</table>
The age cohorts for Illinois veterans follows the national trends described previously. Table 2 shows the age cohorts for veterans and non-veterans who are 18 years old or older within Illinois. Forty-six percent of Illinois veterans are sixty-five years old or older compared with 17% for Illinois non-veterans. The percentage of older veterans will likely increase within the next ten years as the younger baby boomer generation reaches 65 years old or older. However, growth in the number of younger veterans will partially offset this.

Table 2: Illinois Age Cohorts for 18 Years and Older; Non-veteran and Veteran Populations (ACS 5-Year, 2013)

<table>
<thead>
<tr>
<th>Age</th>
<th>Non-Veterans</th>
<th>Percentage of Non-veterans in Age Group</th>
<th>Veterans</th>
<th>Percentage of Veterans in Age Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-34</td>
<td>3,015,322</td>
<td>31%</td>
<td>56,455</td>
<td>8%</td>
</tr>
<tr>
<td>35-54</td>
<td>3,549,622</td>
<td>36%</td>
<td>165,251</td>
<td>23%</td>
</tr>
<tr>
<td>55-64</td>
<td>1,521,036</td>
<td>16%</td>
<td>169,186</td>
<td>23%</td>
</tr>
<tr>
<td>65-74</td>
<td>890,539</td>
<td>9%</td>
<td>155,777</td>
<td>21%</td>
</tr>
<tr>
<td>75+</td>
<td>766,319</td>
<td>8%</td>
<td>181,250</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>9,742,838</td>
<td></td>
<td>727,919</td>
<td></td>
</tr>
</tbody>
</table>
The disability rate for Illinois veterans is approximately 25% compared with the estimated 11% for Illinois non-veterans. Thirty-seven percent of Illinois veterans age 65 or older have a disability as shown in Table 3. The 15% disability rate for younger Illinois veterans is more than twice that of non-veterans (approximately 7%).

Illinois veterans are generally financially better off than non-veterans. The number of veterans in the low-income category is only 7%, compared with 12% for all Illinois non-veterans. Although veterans nationally have a higher rate of college education than non-veterans, the percentage of college educated veterans in Illinois is slightly lower according to the 2013 American Community Survey.

Table 3: Non-veteran and Veteran Populations Who are Senior, Disabled, and/or With Low Incomes (ACS 5-Year, 2013)

<table>
<thead>
<tr>
<th>People Age 18 and Over</th>
<th>Non-Veterans</th>
<th>Veterans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seniors</td>
<td>1,656,858</td>
<td>328,310</td>
</tr>
<tr>
<td>Disabled Seniors</td>
<td>441,032</td>
<td>121,642</td>
</tr>
<tr>
<td>Disability Rate for Seniors</td>
<td>27%</td>
<td>37%</td>
</tr>
<tr>
<td>Adults Age 18-64</td>
<td>8,085,980</td>
<td>385,419</td>
</tr>
<tr>
<td>Disabled Adults Age 18-64</td>
<td>600,193</td>
<td>57,577</td>
</tr>
<tr>
<td>Disability Rate for Age 18-64</td>
<td>7%</td>
<td>15%</td>
</tr>
<tr>
<td>Total Adult Disability Rate</td>
<td>11%</td>
<td>25%</td>
</tr>
<tr>
<td>Persons living at Low Income Status</td>
<td>1,165,615</td>
<td>47,894</td>
</tr>
<tr>
<td>Low-Income Percentage</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>College Education</td>
<td>2,672,323</td>
<td>174,253</td>
</tr>
<tr>
<td>College Education Rate</td>
<td>27%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Illinois Veterans Integrated Service Network Regions include Regions 11, 12, 15, and 23. Their boundaries determine where veterans may seek Veterans Administration Medical Center, Outpatient Clinic, Community Based Outpatient Clinic, and Vet Center services. Each of these is spread across multiple states and over multiple Illinois Human Service Transportation Planning
regions. Figure 4 shows the Illinois Veterans Integrated Service Network, the Human Service Transportation Planning regions, and the Veterans Administration Medical Centers within Illinois. Please note, there are no Veterans Administration Medical Centers within Illinois for Veterans Integrated Service Network 23, which intersects five Human Service Transportation Planning regions. The Illinois veterans living in Veterans Integrated Service Network 23 must travel to Iowa City to reach a Veterans Administration Medical Center.

Figure 4. Veterans Administration Medical Facilities, Veterans Integrated Service Network and Human Service Transportation Planning Regions
Three of the five Veterans Administration Medical Centers in Illinois are in the Chicago area serving Veterans Integrated Service Network 12 (Figure 4). This network intersects four Human Service Transportation Planning regions. The other two Illinois Veterans Administration Medical Centers are in Veterans Integrated Service Networks 11 (Danville) and 5 (Marion). Danville is located in east central Illinois and Marion is close to Illinois’ southern tip. Therefore, most of the veterans living outside of the Chicago metropolitan area must travel long distances or go out-of-state to reach their Veterans Administration Medical Center.

Outpatient Centers, Community Based Outpatient Centers and Vet Centers are located throughout the state, but Human Service Transportation Planning Region 4 has only one Community Based Outpatient Center, and Human Service Transportation Planning Region 9 has none of the Veterans Administration services mentioned above located within it. This spatial arrangement forces many Illinois veterans to travel out-of-state to reach the closest Veterans Administration Medical Center.

The spatial mismatch between Human Service Transportation Planning regions and the Veterans Integrated Service Networks means that veterans within a particular Human Service Transportation Planning or Regional Planning Area may be assigned to different Veterans Administration Medical Centers. Many veterans will need to access a Veterans Administration Medical Center outside of the planning region and/or out of state. Other veterans may have access to multiple Veterans Administration Medical Centers that are primary destinations for their planning region. This adds to the complexity of trying to coordinate veteran transportation services with other human service and public transportation providers.

**The Illinois Department of Veterans Affairs**
The Illinois Department of Veterans Affairs’ Veterans Assistance Commissions and the Veterans Service Officers provide veterans services at the state level and can help with benefit claims. The Illinois Military Veterans Assistance Act (330 ILCS 45/9) has provided funds for counties to set up Veterans Assistance Commissions, which are incorporated into county governments. The Veterans Service Officers are available throughout the state, while the Veterans Assistance Commissions are located within a limited number of Illinois counties.

The Illinois Department of Veterans Affairs offers a variety of programs including educational and employment opportunities, long-term care in veterans’ homes, and mental health care. Illinois Veterans Service Officers regularly meet with veterans in Illinois Department of Veterans Affairs offices throughout the state or in public locations such as City Halls, public schools, and libraries. They schedule regular appointment days usually twice a month. The Veterans Assistance Commissions primarily help veterans get their state and county level benefits and help veterans with the Federal Veterans Administration process.

The Illinois Department of Veterans Affairs does not offer transportation services. Veterans, therefore, must find their own transportation to Veteran Service Offices or other public locations. However, some Veterans Assistance Commissions provide transportation to Veterans Administration Medical Centers.
Section 2: The IDOT/Urban Transportation Center Veterans Transportation and Community Livability Initiative Grant

In 2007, IDOT asked the Urban Transportation Center at the University of Illinois at Chicago to create the Tranpro Information Management System to support the Statewide Coordinated Transportation Plan. This system aggregates information required for the regional human service transportation plans to provide a statewide perspective on regionally conducted services and coordination efforts. The Tranpro Information Management System is a repository for the Statewide Public and Specialized Transportation Providers Inventory, which includes the aggregated regional Human Service Transportation Planning inventories, IDOT and Illinois Department on Aging grantees, and detailed service information. The Tranpro Information Management System also provides information on Human Service Transportation Programs the Federal Transit Administration funds.

The Veterans Transportation and Community Livability Initiative enabled IDOT to expand its coordinated transportation efforts to include veterans’ transportation services. IDOT hired the Urban Transportation Center to include an interactive “one-click” transportation resource center within the Tranpro Information Management System. The One-Click Transportation Resource Center provides information on veteran services throughout Illinois and hosts a trip-planning tool to provide information on veterans’ transportation services, public and specialized transportation services, commercial bus and rail options within and near Illinois, and car share/ride share options. It targets Illinois veterans, their families, and the agencies serving them.

Veteran’s Transportation within Illinois

One of this study’s primary goals was to have the One-Click Transportation Resource Center disseminate information about veterans’ transportation services. The study team needed a clear understanding of how veterans’ transportation services fit within the context of other services for veterans, non-veteran transportation services, and the coordination process. The Urban Transportation Center thus made data collection on veterans’ services including transportation their first task.

Veterans Transportation System services operating within Illinois are primarily based at Veterans Administration Medical Centers (VAMCs). All of these Medical Centers have Veterans Transportation System programs, except for the Capt. James A. Lovell Federal Health Center at the Great Lakes Naval Station in North Chicago. The other Medical Centers offer shuttle services between the major hospital and Outpatient Centers and Community Based Outpatient Centers within their Veterans Integrated Service Network. They also provide a home-to-
Veterans Administration Medical Center transportation service for veterans living within fifty miles of the Veterans Administration Medical Center.

The Iowa City Veterans Administration Medical Center and the Madison, WI Veterans Administration Medical Center offer Veterans Transportation System services which help Illinois veterans seeking medical services there. The Iowa City Veterans Administration Medical Center offers both shuttle and home-to-Veterans Administration Medical Center services. The Madison, WI Veterans Administration Medical Center only provides shuttle service.

The St. Louis Veterans Administration Medical Center offers Veterans Transportation System home-to-Veterans Administration Medical Center service to Illinois veterans for whom they provide primary care. However, it does not provide shuttle service.

These Veterans Transportation System services have some limitations, such as designated pickup locations rather than home-based services. The fifty-mile service area for home-to-hospital service leaves many veterans who live outside of that threshold traveling long distances to reach the Veterans Administration Medical Center.

There are forty-four Veterans Assistance Commissions (VACs) within Illinois, thirty-eight of which are outside of the Chicago area. Eighteen of them directly provide transportation services and two of them provide vouchers for public transportation. Veterans typically use these services to get to or from their appointments at Veterans Administration Medical Centers. The arrangements and terms for these services vary among Veterans Assistance Commissions.

Some of the vehicles used to provide veterans transportation are rented or donated; at least one Veterans Assistance Commission has received capital funding from Section 5310 funds. Although some Veterans Assistance Commissions hire drivers, many rely on volunteer drivers.

Transportation funding comes from a county tax levy, donations, or in rare cases, from Veterans Transportation System funds. County funding restricts most Veterans Assistance Commissions from offering benefits to veterans living outside their county. Many of these commissions, however, will transport veterans living outside of the county if these veterans travel to the county for pickup. This leaves veterans to resolve how to travel between the transit facility and origin/destination.

Figure 5 shows the location of Illinois Veterans Transportation System Shuttle Routes and the fifty-mile service area surrounding the regional Veterans Administration Medical Centers. The study team included Indianapolis, Iowa City, Madison (Wisconsin), and the St. Louis Veterans Administration Medical Centers because they serve many Illinois veterans within their Veterans Integrated Service Networks and provide some Veterans Transportation System services within Illinois.
Figure 5: Illinois Veterans Transportation Services

Shuttle Stops
- VAMC
- Pick-Up Location

HSTP Regions
- 0: 6
- 1: 7
- 2: 8
- 3: 9
- 4: 10
- 5: 11

VACs
- Offers Transportation
- Does Not Offer Transportation
Most Veterans Assistance Commissions are located in northern Illinois. Human Service Transportation Planning Regions 10 and 11 each have one Veterans Assistance Commission. Most of the Commissions providing transportation are located in the northern half of Illinois (please see, Figure 5). Thirty of the southernmost Illinois counties do not have a Veterans Assistance Commission. Although the Veterans Transportation System shuttle services extend long distances within Illinois, veterans must find their own transportation to and/or from shuttle pick-up locations. These locations may be far from veterans’ origins and/or destinations.

Some public and specialized transportation services can address the “first and/or last leg” issue but may need to cross county boundaries or extend some trips beyond their service areas to connect veterans to Veterans Transportation System and Veterans Assistance Commission services. Each Illinois public transportation provider and Human Service Transportation Planning Coordinator is prepared to offer mobility management solutions and arrange special trips as needed, but the complexity of the overlap in Human Service Transportation Planning, Veterans Integrated Service Network, and public transportation service regions creates a challenge. Public transportation providers and/or Human Service Transportation Planning Coordinators may address these service gaps on a case-by-case basis. Individual success and successful mobility management efforts to solve the coordination problem will depend on having service level information on all the transportation options available.

Readily available information on veterans’ transportation services is also lacking. While meeting days and locations for Veteran Service Offices are well documented on the internet, information on Veterans Assistance Commission services are usually incorporated as a department on a county government website. It will likely have contact information and possibly operating hours posted.

Transportation services are typically advertised over the radio, in newspapers, via flyers and brochures that are given out at public events, or at the Veterans Assistance Commission. The Veterans Assistance Commission service providers are generally aware of public transportation services operating within their county, but may not be aware of all of the options that could help veterans travelling from other counties to access their service.

Details on Veterans Transportation System services and policies are not provided online. Veterans Administration Medical Centers usually only post a transportation contact name and phone number. The veteran’s primary care provider is responsible for qualifying and connecting his or her patients with Veterans Administration transportation services, including coordinating Veterans Transportation System services with Beneficiary Travel Program and Volunteer Transportation Network services.

Since veterans seeking Veterans Administration Medical Center services typically come from large Veterans Integrated Service Network regions, it is unlikely that the Transportation Coordinator knows about all of the available public or specialized transportation services.
However, he or she may know more about national transportation services such as Amtrak or Megabus.

The “One-Click Transportation Resource Center” provides an opportunity to bridge the information gap for veterans’ service providers and public and specialized transportation mobility managers. A lack of connection between planners and veteran service providers, however, prevents broader coordination policies and agreements for helping resolve veterans’ unmet transportation needs.

While the pertinent issues affecting veterans’ transportation are reflected in the literature, it is important to understand veterans’ cohort needs in Illinois. The project team at the University of Illinois at Chicago, developed a research protocol as follows for understanding and cataloging these needs.

**Needs Assessment**

**Methodology**
The study team undertook a needs assessment to begin understanding different stakeholder group perceptions of veterans’ mobility needs as well as to examine the level of interaction and coordination among these groups. The study team talked with Human Service Transportation Planning Coordinators, small rural public transit providers, and Veterans Assistance Commission staff.

The Human Service Transportation Planning Coordinators play a vital role in Illinois. They coordinate public transit providers, human service agencies, state agencies, and other stakeholders to help them meet the needs of various target populations. They directly work with these stakeholders on an ongoing basis ([http://tranpro.utc.uic.edu](http://tranpro.utc.uic.edu)) to help implement the Human Service Transportation Plan, which is designed to maximize transportation options for target populations throughout a specified region.

The study team conducted semi-structured phone interviews with each of these stakeholder groups. They designed these interviews to elicit information about how agencies disseminate information about their services, whom they target, and how successful they thought those efforts were. They also asked Human Service Transportation Planning Coordinators and the small rural public transit agencies if they specifically targeted veterans for services and how they ranked veterans’ knowledge and awareness of these services.

The study team requested interviews for every stakeholder in each category. Five Human Service Transportation Planning Coordinators, nine Veterans Assistance Commissions and 12 public transit providers agreed to an interview. These interviews were optional, so the study team worked with those who were willing and had time to participate.

The study team asked each interviewee about the level of interaction within their cohort and
how they engaged with each other across stakeholder groups (e.g. Human Service Transportation Planning, Transit, and the Veterans Assistance Commission). The study team also asked them whether there were any unmet needs for transportation services and if the Commission’s lack of transportation services was affecting veterans’ ability to access their services.

The study team then developed cognitive maps and analyzed them using Decision Explorer software (Sriraj, 1999). Cognitive mapping theory provides the basis for Strategic Options Development Analysis (SODA). Researchers have effectively used it when looking for a systemic outlook since it is a qualitative technique based in systems theory. They used data from the interviews to gauge each stakeholder’s perceptions and attitudes about the level of coordination needed between them and to determine if the stakeholders registered the importance of veterans mobility needs in their overall outlook toward coordinated transportation.

Cognitive Maps

The study team consolidated responses from each stakeholder category and built three cognitive maps, one for each stakeholder group, using Decision Explorer software. These maps contain responses to interview questions in the form of “concepts” or short phrases (text box). The “links” drawn between these text boxes/concepts indicate a causal relationship that emerged from the interviews. Together, concepts and “links” form a model. The cognitive map is the whole data set. Decision Explorer managed the data’s complexity to maintain its richness, rather than rely on weaker, generalized statements to summarize interview data.

Decision Explorer produced many different statistics out of which the study team chose the central and potency scores for this analysis. The central score represents a concept’s level of influence on other concepts. The central analysis looks at concepts to the specified band level that are linked to each preceding concept, irrespective of direction of the connectivity between the text boxes or concepts. The central score represents the level of influence that a concept has in relation to other concepts in the model, while the potency score reflects the extent to which a peripheral concept contributes to the higher-order central concepts. (Mattingly, et.al 2010). The study team used cognitive maps for each of the three different stakeholder groups to calculate the central and potency scores.

Findings

The Human Service Transportation Planning Coordinators’ views are reflected in the central and potency scores shown in Table 4. The most central potency and central scores seem to show a knowledge and understanding gap between the Human Service Transportation Planning Coordinators and the Veterans Assistance Commissions. They also shows a lack of trust between Veterans Assistance Commissions and both the Human Service Transportation Planning Coordinators and the public transportation providers. The Human Service Transportation Coordinators believe this lack of understanding and trust prevents them from currently addressing veterans’ mobility needs in Illinois.
A similar analysis for the interview responses from public transit providers (Table 5) shows they do not interact much with Veterans Assistance Commissions and are not targeting veterans for special services. They believe the lack of available funding prevents them from addressing veterans’ mobility needs. They believe the Veterans Assistance Commissions are not giving them funding because the Commission’s veterans do not see the benefit of coordinating with public transit providers.

Table 4. Central and Potency Scores of Human Service Transportation Planning Coordinators

<table>
<thead>
<tr>
<th>Central Scores</th>
<th>Potency scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Communication and coordination between human service transportation planning agencies, public transit agencies, and other stakeholders except veterans</td>
<td>1 Low awareness of available public transportation services</td>
</tr>
<tr>
<td>• Lack of understanding by Veterans Assistance Commissions about how coordination can improve mobility</td>
<td>2 Age is a factor in awareness</td>
</tr>
<tr>
<td>• Lack of trust between Veterans Assistance Commissions and human service transportation planning/public transportation agencies</td>
<td>3 Lack of information on veterans' services</td>
</tr>
<tr>
<td>• Lack of specialized services targeted toward veterans</td>
<td>4 Coordinated services in public transportation do not include veterans' services</td>
</tr>
<tr>
<td>• Coordinated services in public transportation do not include veterans' services</td>
<td>5 Formal communication mechanisms between human service transportation planning and public transportation</td>
</tr>
<tr>
<td>• Lack of information on veterans' services</td>
<td>6 Communication and coordination between human service transportation planning, public transportation, and other stakeholders except veterans</td>
</tr>
<tr>
<td>• Veterans Assistance Commissions feel like there is no gap in service</td>
<td>7 Lack of trust between Veterans Assistance Commissions and human service transportation planning/public transportation agencies</td>
</tr>
<tr>
<td>• Significant coordination between human service transportation planning and public transportation agencies</td>
<td>8 Lack of understanding by Veterans Assistance Commissions about how coordination can improve mobility</td>
</tr>
</tbody>
</table>
Table 5. Central and Potency Scores of Public Transit Providers

<table>
<thead>
<tr>
<th>Central Scores</th>
<th>Potency Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Unmet need for public transportation</td>
<td>• 1 Unmet need for public transportation</td>
</tr>
<tr>
<td>• Targeted funding for special services is also a problem</td>
<td>• 2 Lack of Funding is an issue</td>
</tr>
<tr>
<td>• Public transportation agencies have very little interaction with Veterans</td>
<td>• 4 Lack of knowledge about needs</td>
</tr>
<tr>
<td>Assistance Commissions but close contact with human service</td>
<td></td>
</tr>
<tr>
<td>transportation planning agencies and metropolitan planning organizations</td>
<td></td>
</tr>
<tr>
<td>• Veterans not targeted</td>
<td>• 5 Continuous marketing through various mechanisms</td>
</tr>
<tr>
<td>• General public is knowledgeable and aware about public transit</td>
<td>• 6 Veterans not targeted</td>
</tr>
<tr>
<td>• Lack of funding is an issue</td>
<td>• 7 General public is knowledgeable and aware about public transit</td>
</tr>
<tr>
<td>• Lack of capital, rolling stock, and staff is a barrier to coordination</td>
<td>• 8 Travel training programs in place</td>
</tr>
<tr>
<td>• Lack of knowledge about needs</td>
<td>• 9 Public transportation agencies have very little interaction with Veterans</td>
</tr>
<tr>
<td></td>
<td>Assistance Commissions but work closely with human service</td>
</tr>
<tr>
<td></td>
<td>transportation planning agencies and metropolitan planning organizations</td>
</tr>
<tr>
<td>• Continuous marketing through various mechanisms</td>
<td>• 10 Lack of capital, rolling stock, and staff hinders coordination</td>
</tr>
</tbody>
</table>
The study team tabulated the Veterans Assistance Commissions’ responses in Table 6. The Veterans Assistance Commissions acknowledged an unmet need exists for transporting veterans in their regions and stated that the barriers to effective and continuous transportation service were physical and financial. As was the case with the Human Service Transportation Planning Coordinators and the Public Transit Providers, the Veterans Assistance Commissions acknowledge a lack of communication or coordination with the other stakeholder groups. These are not as highly ranked in the central scores but are in the top three when it comes to coordinating with transit providers. This shows the Veterans Assistance Commissions believe the unmet need for transportation (which is the second most important central concept) stems from the lack of coordination with transit providers. This is significant.

Table 6. Central and Potency Scores of Veterans Assistance Commissions

<table>
<thead>
<tr>
<th>Central Scores</th>
<th>Potency Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Veterans Assistance Commissions provide transportation for medical trips</td>
<td>1 Veterans have an unmet need for transportation</td>
</tr>
<tr>
<td>• Veterans have unmet need for transportation</td>
<td>2 Veterans Assistance Commissions provide transportation for medical trips</td>
</tr>
<tr>
<td>• Physical and financial barriers to seamless transportation for veterans</td>
<td>3 Very little coordination with transit agencies</td>
</tr>
<tr>
<td>• Travel Information through marketing</td>
<td>4 Veterans Assistance Commissions provide gas vouchers</td>
</tr>
<tr>
<td>• Communication with human service transportation planning agencies is non-existent or not impactful</td>
<td>5 Communication with human service transportation planning agencies is non-existent or not impactful</td>
</tr>
<tr>
<td>• Very little coordination with transit agencies</td>
<td>6 Travel Information through marketing</td>
</tr>
</tbody>
</table>

The central and potency scores calculated for each of the stakeholder groups provided a defensible causal explanation about their perceptions of veterans’ mobility needs. It is evident based on the interview summaries, the cognitive maps, and the computed analytical scores that coordination is the most significant issue. All three stakeholder groups indicated the veterans were not really connected with the other two stakeholder groups when these groups were coordinating and leveraging resources. There may be many reasons for this lack of inclusion or representation.
The interviews also showed communication and coordination are key to addressing the unmet need for veterans' transportation in Illinois. This is especially important because issues such as high gas prices and the shortage of volunteer drivers have plagued the Veterans Administration’s Beneficiary Travel Program (reimbursement) and the Disabled American Veterans volunteer driver network. The veterans funding programs – the Veterans Transportation System and the Veterans Transportation and Community Livability Initiative, have striven to improve coordination within and between human service, public transit, and Veterans Assistance Commissions. Ongoing issues such as Veterans Transportation Program service areas, pick-up locations, and non-medical trip availability need to be addressed. Coordination can help address these issues.

The One-Click Transportation Resource Center

The One-Click Transportation Resource Center seeks to provide detailed information on multiple transportation options for Illinois veterans, their families, and agencies seeking to help these people. It can serve as a resource for mobility managers seeking to help clients or for regional call centers implementing coordinated transportation services for the public.

Server System

The study team set up a virtualized server system on three physical servers to support the development and production environments. The development environment includes project management software, a sandbox website, file storage space for each developer on the staff, and software appliances to manage the virtual environment. The production environment deploys a GIS server to host Tranpro and the Veterans Transportation and Community Livability Initiative’s mapping applications, a file server for data storage, and a web server to host both websites. A backup system uses separate storage to ensure security. This virtual system allows
for rapid replacement of all data, software, and production capability if the physical machine fails. This system is described in detail in Appendix A.

**Website Design**

The website is implemented on a Red Hat Linux webserver using PHP and Javascript to interface between users and the data, which are stored in a MySQL database. This LAMP (Linux/Apache/MySQL/PHP) solution stack uses open source software and databases which are light-weight in terms of resource allocation and provide extremely efficient data-retrieval. The use of open source software reduces costs. Linux’ Red Hat version is a subscription service providing additional security beyond what might be found with other Linux distributions such as Ubuntu.

The study team sought to minimize the website users’ amount of paging/clicking for accessing information offered on the site. The website’s front page offers information on veterans’ services placed side-by-side with public and specialized transportation services available to connect to them. Commercial options such as Amtrak, Greyhound, Megabus, car-sharing, and ride-sharing options are also included under separate tabs to simplify results for the user.

Figure 7 shows a screenshot of the website’s front page. The website’s design lets users obtain information from multiple sources as efficiently as possible based on their needs. The study team sought to provide a wide range of transportation options to fit the wide range of potential needs of veterans seeking transportation services.

**Figure 7. Screen shot of the One-Click Transportation Resource Center**
The public and specialized transportation query page is the default page when a database user
opens the website. It lists available services for veterans organized by county and a reference
map showing service locations (e.g. Veterans Administration Medical Centers and Clinics,
Veterans Assistance Commission offices, and Veteran Service Offices meeting locations within
Illinois).

The public and specialized transportation services offered in this section include all fixed route
and demand response public transportation, all Title XX and Title IIIB senior transportation
services, and all veterans’ transportation services within Illinois. Each of these transportation
services has accessible service for people with disabilities except for some Veterans Assistance
Commission transportation services and volunteer services.

This website offers the user two different query options for public and specialized
transportation services. The first is a county-based query, which identifies transportation
options serving that county. County-level service boundaries usually define public and
specialized services offered (except fixed route services), so this spatial boundary produces the
most relevant results for the user seeking nearby available services.

The second query option is a city-to-city query which matches origin and destination pairs with
the services that link them. These include some of the demand response services’ extended
service areas. If no public transportation services link the user’s origin-destination pair, then
the query provides an option to contact a mobility manager for help and refers him or her to
the Illinois Bus Network’s intercity commercial options.

Each of these queries allows the user to select special services for veterans, seniors, or persons
with disabilities. Depending on the user’s selections, all available specialized services are
shown that either serve their selected county or their selected origin and destination. These
transportation services are identified within public, veteran, and senior categories and are
sorted by service type under appropriately labeled tabs for easy access.

The query results offer as much service related detail as possible, including eligibility
requirements, schedules, fares, and phone numbers. If the provider has a transportation
service-level website, the query results show the uniform resource locator (URL) for that
website.

The second tab offers commercial options for intercity travel. This tab loads the Illinois Bus
Network website trip planning page which allow users to enter origin and destination cities.
Commercial carriers serving that trip are selected from Amtrak, Burlington Trailways, Coach

The third tab includes car-sharing and ride-sharing options that Enterprise, Zip Car, eRideShare,
and Ridester offer. The query pages for these websites open (for Illinois) when the user selects
one.
The fourth tab opens the Google Trip Planner on a separate page and the fifth tab collects feedback from users via a web form. This form solicits user feedback about the user’s purpose, website utility, ease of use, etc. It also asks users to identify themselves as veterans or non-veterans and whether they are using the website for their own needs or for someone else.

The study team has attached Google Analytics to the website, which will provide information on website activity over time. It will collect such statistics as the number of new and returning visits, page views, and the length and frequency of visits.

**Operations and Future Work**

The Veterans Transportation and Community Livability Initiative award stipulated the grantee has in place a program and means of operating and maintaining the One-Click Transportation Resource Center beyond the initial grant. The study team will continue to maintain and update the data, software, and hardware for the One-Click Transportation Resource Center and for the Tranpro Information Management System under the ongoing Tranpro grant. The study team will also refine, enhance, and continue to develop the website design and functionality based on stakeholder and user feedback.

Public outreach will be necessary to promote the use of the One-Click Transportation Resource Center website. The study team will next focus their attention on marketing the website and disseminating information on available services. They plan to create a customized flyer by region to promote the website’s use and provide basic contact information for veterans’ transportation, public transportation, and specialized transportation services. These flyers can be placed with Veterans Assistance Commissions and with Veterans Service Officers to give to veterans needing transportation assistance.

As part of their future work the study team plans to include collecting data directly from veterans. An on-board survey of veterans using Veterans Transportation System or Veterans Assistance Commission-sponsored transportation would cast some light on the issues and veterans’ transportation needs. Public transportation providers frequently conduct on-board surveys and might be willing to collect information on their riders’ veteran status and knowledge of available veterans’ transportation-related services.

Analysis of available transportation services and the results of the needs assessment show appropriate dissemination of transportation service information can help veterans’ service providers, public and specialized transportation providers, and regional planners improve mobility for veterans and their families. Regional planners, regional call centers, mobility managers, transportation providers, veterans’ services officers, and individuals can use the One-Click Transportation Resource Center to get transportation service information. The website will also disseminate contact information for mobility managers and help increase awareness of that available help. Veterans’ transportation services are now included in the Tranpro Information Management System, allowing Human Service Transportation Planning
Coordinators to incorporate those services in their mobility management strategies.

Stakeholder engagement can improve veterans’ mobility. The need for coordination with veterans’ transportation services and the extent of that coordination will vary from region to region. The dialogue between planners, public transportation providers, veterans’ transportation providers, and other human service transportation providers needs to be ongoing and purposeful to properly assess unmet need and develop coordinated plans to meet that need. The One-Click Transportation Resource Center creates an opportunity for common ground among the various stakeholders who may use and contribute data to this project.
Appendix A
Server System to Support the Tranpro IMS and the IDOT/Urban Transportation Center Veterans Transportation and Community Livability Initiative Project

The study team set up a virtualized server system supporting the Tranpro and Veterans Transportation and Community Livability Initiative projects on three physical servers, including two Dell PowerEdge T420 Servers and an IBM x3400 server. They also used VMware’s vSphere Essentials package to create a virtual environment to host the ArcGIS Server, a webserver, a file server, and development environments.

The study team purchased an IBM x3400 server in 2007 to support the Tranpro project. This server still functions, but the hardware components are now obsolete, so it cannot be upgraded or rebuilt. Given it is expected to fail at some point, the study team is using it as a development sandbox for web programmers. At a failure point, they can restore this work from backups. The PowerEdge servers with the specifications shown in Table 1 host most of the project work. One server, intended for development, has four 500GB hard drives, and the other server, intended for production, has four 1TB hard drives, each with RAID 1+0 configuration.

Table 1: Specifications for Dell PowerEdge T420 Servers

<table>
<thead>
<tr>
<th>PowerEdge T420 Server</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Xeon® E5-2430 2.20GHz, 15M Cache, 7.2GT/s QPI, Turbo, 6C, 95W, Max Mem 1333MHz</td>
</tr>
<tr>
<td>Additional Processor</td>
<td>Intel® Xeon® E5-2430 2.20GHz, 15M Cache, 7.2GT/s QPI, Turbo, 6C, 95W</td>
</tr>
<tr>
<td>RAID Configuration</td>
<td>RAID 1 for H710P/H710/H310 (2 HDDs) with Cabled Chassis</td>
</tr>
<tr>
<td>RAID Controller</td>
<td>PERC H310 Integrated RAID Controller, Full Height</td>
</tr>
<tr>
<td>Hard Drives</td>
<td>1TB 7.2K RPM SATA 3Gbps 3.5in Cabled Hard Drive 500GB 7.2K RPM SATA 3Gbps 3.5in Cabled Hard Drive</td>
</tr>
<tr>
<td>Network Adapter</td>
<td>On-Board Broadcom 5720 Dual Port 1Gb LOM</td>
</tr>
<tr>
<td>Memory</td>
<td>32 GB (16 per processor)</td>
</tr>
</tbody>
</table>
Virtualization involves using a special “thin” operating system, a hypervisor, as a platform on a physical server to host “virtualized” machines. The hypervisor imitates the hardware functions of physical computers based on configured specifications. This allows for multiple installations of servers or other machines on a single physical server. Virtualized systems have many advantages. One advantage is the ability to clone, back up, and migrate virtual machines (VMs) with installed software and files intact. If a physical machine fails, a backup replacement can be mounted and up and running within minutes, simply by moving a copy from storage onto a virtual platform. Virtual machines allow for system level resource adjustment based on current need. A virtual machine can be mounted for as long as it is needed, and then moved into storage to free up physical resources for other uses. Later, it can be retrieved if needed again.

Similarly, virtual machines can be configured to whatever specifications are needed, with respect to number of CPUs, RAM, and storage within the limits of the physical servers. Virtual networks can be created to maximize network connections and speeds, and resources can be dynamically allocated, so that if at some point one virtual machine is consuming extra resources, additional resources can be borrowed from underused virtual machines within the system. The study team selected vSphere Essentials for virtualization because ESRI fully supports it for running the virtualized ArcGIS Server. If at any point the virtualized GIS system fails, ESRI consultants will help rebuild it at no cost.

Specific advantages of virtualization are listed below:

1. Ease of installing new servers
   - No additional computer/hardware purchases to create a new server
   - Resources within the virtual server pool are allocated
   - Multiple servers are created from the same image
   - Reduced staffing time required to deploy a new service
   - Server deployment time shortened to less than a day

2. Scalability and Flexibility:
   - Virtual resources can be quickly added to increase the capacity
   - Adding vCPUs and RAM is as simple as a reboot
   - Additional disk space can frequently be added on the fly
   - Move data from a slow storage tier to a faster one without disrupting services

3. Simplifies Development and Testing Environments:
   - Virtualization reduces the costs of running separate development, staging, and production environments
   - Quickly modify, test, and deploy images into production, speeding up the development cycle
• Decommission development and staging environments when no longer needed, further reducing costs
• Creation of development servers from production images with no downtime

4. Its green - saves on power, space, and cooling:

• Virtual server units dramatically reduce the physical space, power, and cooling compared to their physical counterparts
• Reduced consumption of power and cooling and saves money too

5. No physical server upgrades and maintenance

• No scheduled downtime to perform hardware upgrades, replace failing components or replace aging hardware
• Seamlessly migrate to a different server, perform preventative maintenance, and even completely refresh the hardware

6. Simplified Disaster Recovery and Business Continuity:

• Virtualization software can replicate virtual machines to a remote data center
• Disaster recovery and business continuity plans are relatively standard


**The Development Environment** includes a virtual Windows Server that hosts project management software and serves as a testing/development environment for any windows-based applications. A Linux/Apache/MySQL/PHP (LAMP) server hosts the web development environment. This virtual machine is a clone of the study team’s production web server which allows them to be certain the configurations are identical and the developed products will function as expected under production. As stated earlier, this server also has a sandbox website and file space for each developer on the staff.

The development environment also includes a virtual Windows workstation which can be remotely accessed. This workstation offers all of the software needed for the project so that development and system management can be remotely performed. Special software needs include ESRI ArcMap, python, SAS, Rapid Miner and R for research and programming needs. Dreamweaver is used for website development and Navicat is used for MySQL database management.

A vSphere appliance called vCenter is installed in the development environment. This appliance is used to manage the virtual system, including virtual machines and the virtual network. VMWare provides an easy-to-use client-side software interface for vCenter. This allows the administrator to monitor the system, allocate resources, move virtual machines in and out of
storage, perform backups, etc. with great ease. Table 2 shows a complete list of the virtual machines used for this project.

**The Production Environment** consists of three virtualized servers: a Windows Server hosting the ArcGIS server, a LAMP server to host the Tranpro and Veterans Transportation and Community Livability Initiative websites, and a Window Server file server for storage. The GIS server hosts mapping applications that are used on both websites. The University of Illinois at Chicago’s MySQL server hosts the MySQL database used for Tranpro and the Veterans Transportation and Community Livability Initiative. There is an option to host the database on the virtualized system, if desired in the future.

The backup system consists of a Lenox Cloud storage device for backups and storage and a WD Cloud storage device for off-site backups to facilitate disaster recovery. The system also includes a UPS Battery which interfaces between the power supply and the physical servers. This device can perform a normal shutdown of the servers in the case of a power failure. This protects the software and data from any damage that might otherwise occur during a sudden power outage.

**Table 2. Virtual Machines and Resource Allocations**

<table>
<thead>
<tr>
<th>VMs</th>
<th>Operating System</th>
<th>CPUs</th>
<th>Memory Allocation</th>
<th>Storage Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Server</td>
<td>Red Hat</td>
<td>2</td>
<td>4 GB</td>
<td>24 GB</td>
</tr>
<tr>
<td>ArcGIS Server</td>
<td>Windows Server 2012</td>
<td>4</td>
<td>16 GB</td>
<td>500 GB</td>
</tr>
<tr>
<td>vCenter</td>
<td>OpenSuse</td>
<td>2</td>
<td>8 GB</td>
<td>140 GB</td>
</tr>
<tr>
<td>Windows Development</td>
<td>Windows Server 2012</td>
<td>2</td>
<td>4 GB</td>
<td>164 GB</td>
</tr>
<tr>
<td>File Server</td>
<td>Windows Server 2012</td>
<td>4</td>
<td>4 GB</td>
<td>500 GB</td>
</tr>
<tr>
<td>Windows Workstation</td>
<td>Windows 8</td>
<td>2</td>
<td>8 GB</td>
<td>208 GB</td>
</tr>
<tr>
<td>Web Development</td>
<td>Red Hat</td>
<td>2</td>
<td>1 GB</td>
<td>16 GB</td>
</tr>
<tr>
<td>WD Cloud</td>
<td></td>
<td></td>
<td></td>
<td>8 TB</td>
</tr>
<tr>
<td><strong>Lenovo Cloud</strong></td>
<td></td>
<td></td>
<td></td>
<td>8 TB</td>
</tr>
</tbody>
</table>
Appendix B
User’s Guide to the One-Click Transportation Resource Center

This guide illustrates the use and functionality of the One-Click Transportation Resource Center. The figures explain various functions, but the guide will be most useful if the user opens the website and explores these functions on the actual site.

The One-Click Transportation Resource Center website contains various sources and options for searching for transportation services. These are shown in the top navigation bar when the website is opened. They include a Public and Specialized Transportation Query, Commercial Transportation Options, Car-sharing and Ridesharing Options, and a link to the Google Trip Planner. An additional Feedback option solicits user input on the website’s functionality, as shown in Figure 1. Each of these options is organized under a labeled tab, which is highlighted when selected. The website opens to the default Public and Specialized Transportation Services Query.

Figure 1: One-Click Transportation Resource Center Website Main Page
The main page also displays a list of available Illinois Veterans Services which are numbered, sorted by County and color-coded by type of service (Figure 1). These services include Veterans Assistance Commissions, Veterans Service Officers meeting sites, and Veterans Administration medical facilities. A reference map for locating these services is also included. The user can zoom in to a specific service to locate it on a street map, as shown in Figure 2.

**Figure 2: Zoom in to Locate a Specific Veterans Services**
The user has two query options for the Public and Specialized Transportation Services Query:

- A county-level search, which returns transportation options serving a specific county of residence selected from the drop-down menu.
- A city-to-city query where the user selects origin and destination cities from drop-down lists and obtains transportation options for the specified origin-destination pair.

Each of these queries can be qualified as serving veterans, seniors and people with disabilities, as shown in Figure 3.

Figure 3: Public and Specialized Transportation Services Query
Figures 4 and 5 show the results of a county-level query for Bond County, with veteran and senior services selected. The services are listed by type of service and each type is organized under a separate tab to help the user when numerous service options are returned.

**Figure 4: Sample County-Level Query for Bond County Showing Public Transit Options**
Figure 5: Results for Bond County Query Showing Veteran and Senior Service Options

Veterans transportation services for Bond County

Senior services are included in public transportation provided by Bond County Senior Center.
The second option for the Public and Specialized Transportation Services Query is to select an origin and destination city. The Origin/Destination City query allows the user to generate city-to-city transportation options, including special services for veterans, seniors and persons with disabilities. Figure 6 shows a sample query for transportation options between Dixon and Elgin, Illinois.

When there is not a direct public transportation service between the two cities, the user is offered the option of contacting the public transit provider in the origin city for mobility management assistance, or exploring commercial transportation options.

**Figure 6: Sample City-to-City Query for Dixon, IL and Elgin, IL.**
The second tab on the top navigation bar opens up the Illinois Bus Network trip planner. This trip planner offers commercial transportation options, including Greyhound, Megabus, Amtrak, and others, as shown in Figure 7. It also includes the neighboring states of Indiana, Wisconsin, Missouri, and Kentucky. The user will enter an origin city and select a state and enter a destination city, also selecting the state, and the trip planner will return a list of commercial options offering service between that origin/destination pair.

**Figure 7: The Illinois Bus Network Trip Planning Tool**
The trip planner results are listed at the top of the results column, as shown in Figure 8, organized by carrier.

**Figure 8: Results from the Illinois Bus Network Trip Planner**

Commercial transportation options are listed at the top of the query result. The user can select each option to review the details related to each one.
The user can then select each option, one at a time, and expand detailed information on the selected provider, with a map showing the trip origin and destination, as shown in Figure 9. The details include the exact location of the origin and destination points. A link to the carriers’ website is also provided so the user can directly check schedules and make reservations, if desired.

Figure 9: Details for the Selected Provider
The Car Share/Rideshare section offers the user access to the ZipCar, eRideShare, Ridester, and Enterprise Car Sharing websites. These offer opportunities to locate car sharing lots and ride sharing opportunities. Each of these options is organized under a different tab, and opens to the Illinois results as a default, as shown in Figures 10, 11, and 12. The exception is the Enterprise website, which opens in a new tab.

Figure 10: Car Sharing and Ride Sharing Options
Figure 11: eRideShare Website

Figure 12: Ridester Website
The Google Trip Planner Tab opens the Google Transit Trip Planner in a separate window for the user’s convenience, as shown in Figure 13. The user can enter origin and destination locations and can then select specific modes for transit, such as bus, subway, train and light rail. The user can also select from “best route”, “fewest transfers”, and “least walking” as search criteria.

**Figure 13: Google Transit Trip Planner**
The “Feedback” tab opens a brief questionnaire soliciting user feedback on the website’s ease of use and the usefulness of the information. We also ask why he or she visited the site, and whether or not he or she is a veteran, as shown in Figure 14.

**Figure 14: Feedback Questionnaire**
References

1. 76, Federal Register, 144, Wednesday, (July 27, 2011).
2. AMVETS, Disabled American Veterans, Paralyzed Veterans of America, & Veterans of Foreign Wars, “The Independent Budget for 2013 – Critical Issues.”
5. Community Transportation Association, “The American Connection: Meeting the Special Transportation Needs of our Military, our Veterans and their Families.”


27. US Department of Veteran Affairs Veterans Transportation Program, “Statement of the Honorable Anthony J. Principi, Secretary of Veterans Affairs Before the Committee on Veterans’ Affairs United States Senate.” http://www.va.gov/OCA/testimony/svac/13my02TP.a


30. Veterans Transportation Roundtable, “Veterans Transportation: A Panel Discussion of Key Needs, Concerns and Solutions.”