

TRANPRO AND ITS ROLE IN FACILITATING SPECIALIZED TRANSPORTATION SERVICES IN ILLINOIS

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Abstract

The use of technology to foster transportation coordination has been discussed in the literature for about a decade now. However, very few efforts have been made successfully at the regional or state level. The Urban Transportation Center at the University of Illinois at Chicago with the support of the Department of Public and Intermodal Transportation (DPIT), IDOT has developed a web-based information management system called TRANPRO. While the primary objective of this portal is to facilitate coordination and mobility management, the system offers data pertaining to human service transportation services across the state of Illinois, as well as underlying demographic and socio-economic data, and provides GIS applications capable of performing spatial analysis, including identifying markets and assessing demand for services. Because of its role as the central repository for the statewide provider inventory, the TRANPRO IMS offers the opportunity to develop detailed service-level data that can be utilized in assessing demand, available services, efficiency and regional interconnectivity of services operating throughout the state. The paper explains the data assimilated, and the functional capabilities of the information system, and demonstrates tool development. Among the functional capabilities included in the system are: a paratransit demand model including data that affect paratransit demand; service area identification; funding programs and the distribution of funding, and other queries aimed at facilitating the application and reporting requirements for federal funding programs, specifically JARC and New Freedom funding. .

Introduction

The changing face of public transportation over the last decade has necessitated a renewed look at the very definition of public transportation and the population served. With the growth in population not just in major metropolitan centers, as well as in small urban and rural areas, the notion that public transportation is best served in places with high densities has gotten more scrutiny than ever before. This is mainly driven from the perspective that the growing population of transit dependent people in less dense areas has meant that “public transportation” needs to adapt to the needs of these transit dependent groups in less dense areas. These services have generally been included in the “paratransit” discussion and more recently into “specialized transportation services”. The difficulties associated with starting and sustaining these specialized services resulted in the mandate for a coordinated approach to serving the needs of the target population groups for these services. The objective of this paper is to discuss the role of information to address duplication of service and service gaps that are prevalent in a region and foster coordination to improve service efficiency.

The paper is divided into the following sections: (1) Problems associated with human service transportation programs, (2) Potential Solutions through Legislation, (3) Policy Implications of Legislative Efforts, (4) Human Service Transportation Coordination, (5) a Description of the Information Management System (TRANPRO), and (6) Functional Elements to aid the HSTP process.

Problems associated with human services transportation programs.

The problems associated with human service transportation programs have been illustrated by many and lie mainly in service provision, program targeting, and financial sustainability. While service provision is unique to the service area and depends on the spatial orientation of activities, program targeting and financial sustainability can be improved by increased awareness and information flow along with updated data about the region and its needs. It is in this area that this paper hopes to impact policy by highlighting the information management system as a tool that will facilitate service that caters to the needs of the traveling public. In order to diagnose the problems embedded with specialized transportation services, one needs to understand the legislative, demographic, and financial platforms on which the service is based. The nation is getting older both in terms of its population and in terms of its transportation infrastructure. In addition, the average life expectancy has increased and resulted in people living longer and driving and being active for longer than in the past. This is resulting in the creation of a larger base of specialized population groups in addition to the disabled population, i.e. senior citizens. In the urban areas, the public transportation system tends to meet the needs of this new demand to a large extent. The relatively lower densities and the spatial separation of activities in the rural areas make it infeasible for public transportation systems to meet the needs of this emerging group. It is in this context that the specialized transportation services assume significance. Accordingly, we will scan the history of relevant legislation as it applies to specialized public transportation services.

Potential Solutions through Legislation

Legislation

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) expired in 1997 and was followed by the Transportation Equity Act for the 21st Century (TEA-21). TEA-21 authorizes Federal surface transportation programs for highways, highway safety, and transit for the 6-year period of 1998 to 2003 (FHWA, 1998). TEA-21 called for seven main principals to be included in regional transportation plans: support economic vitality, increase safety and security, increase accessibility and mobility options, protect and enhance the environment, enhance integration of modes, promote efficient system management, and the efficient preservation of the existing transportation system (FHWA, 1998).

TEA-21 created a new program titled Job Access and Reverse Commute Grants (JARC) (FHWA, 1998). The purpose of the JARC grant program is to improve mobility and economic opportunity for welfare recipients and low-income individuals by funding new or expanded transportation services; a result of “welfare-to-work” program (FHWA, 1998). Job Access grants help develop new transit service to transport these individuals to jobs, training, and childcare (FHA, 1998). Reverse Commute grants also help develop transit services to transport the elderly and general public to suburban job sites (FHWA, 1998).

TEA-21 was followed by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005 (FHWA, 2000). This act allocated \$224.1 billion in funding for highways, highways safety, and public transportation; the largest surface transportation investment in U.S. history (FHWA, 2000). SAFETEA-LU seeks to improve

transportation safety, reduce traffic congestion, improve freight movement efficiency, increase intermodal connectivity, and protect the environment (FHWA, 2000). The act also attempts to lay the groundwork for future challenges (FHWA, 2000). State and local transportation decision makers are given more flexibility in solving problems unique to their communities, while promoting more efficient and effective Federal surface transportation programs by focusing on issues of national significance (FHWA, 2000). New Freedom initiative was authorized through SAFETEA-LU in 2005 as a mechanism to further the cause of disabled population groups and to enhance the mandate of ADA.

Sections of SAFETEA-LU pertinent to health and human services include: 5307 – Urban System; 5311 – Rural or Non-Urban System; 5310 – Elderly Persons and Persons with Disabilities: Consolidated Vehicle Procurement Program (CVP); and 5316 – Job Access Reverse Commute (JARC). (ICCT Clearinghouse, 2006).

ISTEA, TEA-21, & SAFETEA-LU call for the improvement of human services via transportation systems. Each state, with significant input from their metropolitan planning organizations (MPO's), is required to implement improvements to human service provisions in their four year transportation improvement plan (TIP) and their long range regional transportation plan (RTP) (FHA, 2000). The federal government has recognized and acknowledged the need for coordination of transportation services to best serve the general public and those in need of specialized services.

Policy implications of legislative efforts

1. Increase in funding of the various programs
2. Understand the services that cater to these special population groups
3. Improve coordination of federally funded programs
4. Improved education of both providers and riders about funding options and service options in the region
5. Barriers – Analysis of existing transportation systems and obstacles to coordination

These five implications can all be impacted with the help of improved coordination amongst the relevant stakeholders. It is in this context that the human service transportation coordination is being discussed next.

Human Service Transportation Coordination

The generally accepted practice of coordination involves seven steps starting with initiating the improvement process by forming a steering committee to study the issues, followed by an analysis of the existing conditions. This is followed by focusing in on the problem, agreeing on the problem, and then start identifying tangible alternatives to address the problem identified. The alternatives are assessed and the preferred alternative selected and implemented. Post implementation evaluation of the effectiveness of the alternative is also part of the process.

According to federal mandate, direct recipients of FTA funds must create a coordinated, locally developed public transit human services plan to address the needs of underserved populations.

These HSTP plans are a requirement to receive formula funding under JARC, New Freedom Initiative, and the TIP.

In particular, coordination should result in reducing inefficiencies (driver, fleet, staff resources), and in increasing service effectiveness.

Policy Analysis

HSTP Process

SAFETEA-LU went a step further by requiring that any projects funded from Section 5310 (Elderly and Persons with Disabilities), Section 5316 (JARC), and Section 5317 (New Freedom) be “derived from a locally developed, coordinated public transit –human service transportation plan (HSTP)” (Wilbur Smith, 2007). The intent is to maximize service area for the targeted population of DOT and HHS programs in process that involves a wide variety of stakeholders (Wilbur Smith, 2007). The state of Illinois designates public entities to administer the funds based on the population of that region (usually the State for small urban and rural areas and MPO's in urbanized areas) (Wilbur Smith 2007).

While coordination efforts center on the use of MPO's in northeastern Illinois & urbanized areas, IDOT has divided up downstate Illinois in to Human Service Transportation Plan regions (HSTP's) (Wilbur Smith, 2007). This was done because Illinois did not have any official rural transportation planning infrastructure (Wilbur Smith, 2007). Rural and small urban areas will develop their HSTP's by working with regional review committees, also referred to as Regional Planning Councils (RPC's) (Wilbur Smith, 2007). Integration of rural HSTP's with the HSTP's of urbanized areas located in these HSTP regions is seen as a key challenge (Wilbur Smith, 2007). IDOT will oversee coordination efforts to ensure that procedural guidelines are being met (Wilbur Smith, 2007). In summary, Section 5310, 5316, and 5317 funding for projects can only be secured by projects identified in state STIP's, TIP's in urban areas, and Regional Program of Projects (RPOP) in rural and small urban areas (Wilbur Smith, 2007).

The challenges to successful coordination are numerous and they include turf issues, data issues, and service issues. Of these, the turf issues are addressed to some extent by the legislation. The more important aspect is the data. It is here that most coordination efforts fail to take flight. Accordingly, the first step in the process of initiating or expanding coordination efforts is usually to develop or update an inventory of local transportation service providers and organizations that purchase transportation services. This can help to identify gaps and overlaps in existing services as well as potential coordination partners and strategies.

A scan of other states shows that the stakeholders are aware of the need for coordination in providing transportation. Even with the increased awareness, there are some systemic barriers that present difficulty in achieving coordination to the level desired. One significant barrier is in the area of cataloguing specific quantitative information about the service. Most service providers do not have the ability or the financial resources to continuously store data about the system's performance and this in turn impacts their ability to pool resources with other providers and in effectively tracking and reporting their system performance as mandated by the funding agency.

This project is probably the first of its kind that provides data at the state level thereby facilitating coordination across multiple regions.

Illinois and Coordination

In Illinois, the six-county northeastern Illinois Chicago region is the single largest urban center with densities catering to traditional public transportation systems. The rest of the state contains pockets of high density areas that cater to the needs of the local population with public transportation systems of smaller scale compared to the Chicago region. The needs of the “transit-dependent” population for the lower density and rural areas of the state are met by specialized transportation services that are funded and aided by various governmental funding programs and administered and managed by non-profit entities.

The Illinois Department of Transportation and its Division of Public and Intermodal Transportation (DPIT) has been responsible for the allocation of funds to the various service providers through the different funding streams under its aegis. They have also acknowledged the diverse background of the numerous providers and have supported the formation of the ICCT. The ICCT, in conjunction with IDOT has brought the multitude of transportation providers in the state to understand the barriers and explore the synergies that will eventually lead to a cohesive, coordinated transportation network in the state.

As a first step, IDOT wanted to develop an inventory of its Capital Vehicle Procurement Program and followed it up with a tracking and inventory of its formula funding programs. The impetus behind this move was to facilitate transportation coordination across the state by making the providers and the local governments aware of the various recipients of transportation grants in their immediate vicinity. Subsequent to this was the formalization of a vehicle for coordination in the form of the Illinois Committee for Coordinated Transportation (ICCT).

Past Work

The seeds of the Illinois Committee for Coordinated Transportation (ICCT) were sown with the ad-hoc Interagency Committee for Coordination (ICC) which was convened by involved stakeholders from various agencies as well as the University of Illinois at Chicago in 2001-02. At the behest of the ICC, the Urban Transportation Center (UTC) was tasked to facilitate transportation coordination by creating a database to assist Illinois state agencies to locate and coordinate transportation services and resources and to track funding streams and to assist in demand evaluation. This task was included as part of the collaboration between the Illinois Department of Human Services (IDHS) and UTC, which was funded through a grant from IDHS to match UTC’s JARC grant. The data included in this database were TANF Grants, Title XX grants, and Office of Rehabilitation Services grants from the Illinois Department of Human Services (IDHS), Grants administered by IDOT including 5311, 5310 programs, JARC grants, and the Capital Vehicle Procurement Program, Department of Aging Title XX and Title IIIB grants, Department of Commerce and Community Affairs Community Service Block grants.(2002-03) This database/prototype was developed as a desktop application. This initial effort serves as the background to the current research which makes use of information technology and geographical systems to facilitate the transportation coordination process.

About TRANPRO

The current information system (TRANPRO) is powered by ArcGIS and housed in an SQL database at the back-end. Using ArcIMS software, the database and GIS system are linked and can be utilized online: <http://www.utc.uic.edu/tranpro/>. The research is an initiative of the Illinois Department of Transportation, Division of Public and Intermodal Transportation (DPIT) and is being conducted at the Urban Transportation Center, University of Illinois at Chicago. The goal is to develop an interactive information management system of statewide transit providers along with the requisite demographic information (TRANPRO). The TRANPRO Information Management System is developed in an interactive GIS environment and includes the public and specialized transportation data in the form of projects funded by 5307, 5311, 5310, JARC and New Freedom grants, Title IIIB and Title XX programs for seniors, as well as other known human service transportation providers operating within the state. The data provided by DPIT, the Regional Planning Councils (RPC) and the Illinois Department on Aging are housed in a central server at the UTC and is made accessible to all the stakeholders through a secure gateway.

Spatial features representing transportation service areas were created using Geographical Information Systems (GIS). These service areas represent the residential eligibility for public and specialized transportation services. These features were then grouped into two “coverages”: (1) public transportation providers (2) human service (specialized) transportation providers. Block group level demographic data from the decennial census allows for spatial analysis from provider service areas up to the regional and statewide level. These data are provided as a separate coverage over the state of Illinois, and are also aggregated within the transportation service areas to facilitate analysis.

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How to develop transportation data and provide access to it?

This research has illustrated the development of an interactive information management system that is spatial in nature with a simple user interface that allows for different stakeholder categories to benefit from the data disseminated. The stakeholders that can potentially benefit from this work are (1) transportation administrators with department of transportation; (2) human service transportation coordinators; (3) specialized transit providers; (4) mobility managers; (5) applicants for future specialized transit provision; and (6) advocacy groups and transit users. This section will describe how each of these groups can benefit from use of this application and how it is likely to improve the overall process of administering specialized transportation services.

1. Transportation Administrators with DOT: The inventory of transit providers along with their service characteristics rendered spatially allow for DOT to monitor the landscape of specialized transportation services in an informed, and spatial manner. This also helps in understanding the needs and gaps in service as they process applications for new or recurring funding.
2. Human service transportation coordinators:
3. Specialized transportation providers:
4. Applicants for future funding:
5. Advocacy groups and transit users:
6. Other state agencies (DOA, and others that cater to the disabled market for transportation services)

Functional Elements to Aid HSTP

The discussion thus far has identified three main areas of need that are under the purview of HSTP coordinators: (1) Understanding and identifying regional needs through a process of transparent coordination among the stakeholders in a region, (2) facilitation of the grant application and reporting process and (3) identifying the best practices from across the country as well as from the region to serve as a guide for prospective applicants. These three can be achieved with effective and efficient coordination spearheaded by the coordinators which is divided into two stages: (1) The components of the HSTP plan consisting of the provider inventory, an assessment of the current need, existing resources, and identification of issues and plans for coordination, and (2) management of grant programs in their roles as mobility managers.

The TRANPRO system/website has incorporated a provider inventory, a GIS mapping application with querying capabilities to mine the socio-economic and service area related data, and a wide array of resources aimed at assisting HSTP coordinators in understanding the regional needs in an informed manner.

The other dimension pertaining to the grant application and reporting process is aided by information pieces to assist grant applicants and grant recipients in securing and sustaining funding. To this end, tools to assist them in finding their HSTP region, their coordinator and the contact information, along with the application forms for the JARC, New Freedom, and 5311 programs. At the time of writing this, the concept of a one-stop shop for facilitating these processes has not taken shape in the state of Illinois.

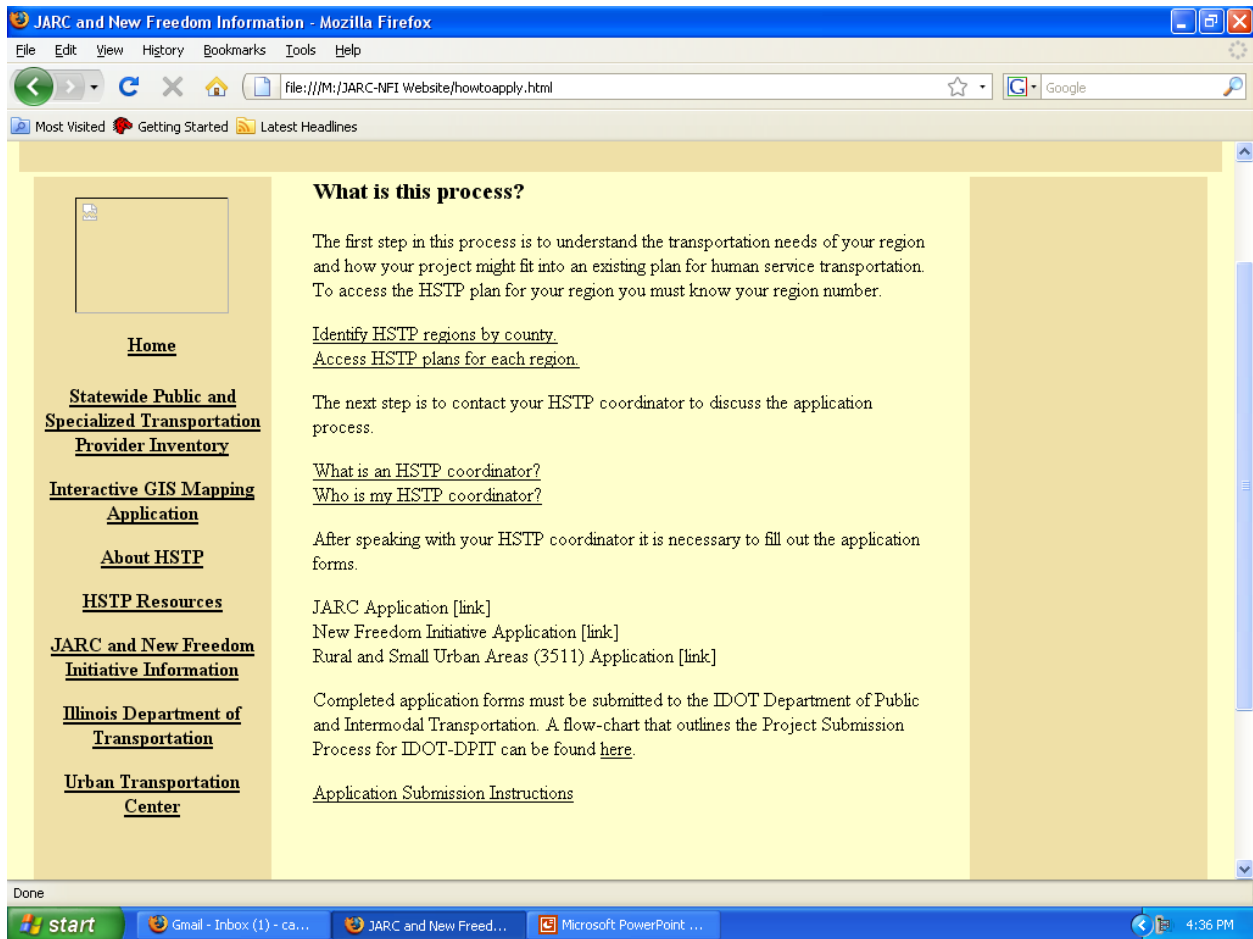


Figure 1. TRANPRO and Formula Program Application Process

Who can benefit?

The two-pronged approach of helping HSTP coordinators and potential grant applicants addresses the systemic issues associated with the coordination of transportation from the perspective of needs identification and the subsequent sequential application/reporting process. The following table lists some of the salient coordination issues addressed by TRANPRO along with the time frame over which these issues can be resolved using the system.

Time Frame (Short, Medium, Long)	Coordination Issues
Long	Cultivate Partnerships
Medium	Establish strong relationships with agencies
Short	Ensure that participating agencies are fully vested in the program
Long	Secure funding

Short	Ensure honest, reliable, and accountable business relationships
Medium	Be flexible; maintain an ability to adapt to changing needs and conditions
Medium	Work closely with the local decision-makers and respond to changing markets
Short	Establish transportation advisory committee
Medium	Maintain collaborative relationships with network providers
Long	Identify the needs of the community and all relevant interest groups
Medium	Identify unmet needs
Medium	Tailor services to the needs of the community
Medium	Offer the agencies involved in coordination a set of products and services of true value
Short/Medium	Involve the stakeholders
Short	Establish systems that are easy to administer and foster coordination
Long	Leverage funding
Short	Select a lead coordination agency that can serve as a mobility manager
Medium	Maximize resources
Long	Recognize and take advantage of opportunities that present themselves with the emergence of new programs and funding sources
Medium	Disseminate institutional knowledge

Conclusions

The concept of an information management system to facilitate statewide coordination of transportation (specialized) is innovative in nature and has been successfully designed and implemented by the research team in conjunction with IDOT-DPIT. This is a work in progress and future improvements to the system will be aimed at satisfying the needs of the target stakeholders who will likely benefit from such a system.

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