



**Final Report**

**WY 18/02F**

**Last Mile Commercial Package Delivery as a Revenue Generation Tool for  
Rural Public Transportation Systems in Wyoming**



October 2017

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## TECHNICAL REPORT DOCUMENTATION PAGE

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<p>16. Abstract: Last mile delivery has emerged as the most important segment in supply chain management of the package deliveries. It is a daunting task to achieve for the manufacturers to sellers at local, regional, state, national, and global level. Many e-commerce giants are creating its own delivery service in order to reduce shipping costs and improve shipping services to customers. It is likely that Amazon and other delivery companies may turn to the urban and rural transit industry to partner in last mile package delivery. Given the growth in the delivery market, it appears to be the right time to investigate how rural transit may have a role in the last mile package delivery system. The goal of this project is to assess the feasibility of last mile package delivery as a revenue generation tool for rural public transportation systems in Wyoming. In an effort to assess the feasibility, the research team conducted an in-depth literature review and surveyed local Wyoming businesses, state department of transportation officials, and transit managers. The survey results, literature review, and demand and potential revenue suggest that the transit agencies have a needed capacity to add a package delivery service, a market for the service, and a facility to house the service. Looking at the number of households in Wyoming, the researchers estimate that on average, each county could see \$215,373 in potential revenue from package delivery via public transportation systems. The following are specific recommendations that, if implemented, would help to initiate package deliveries in rural areas:</p> <ol style="list-style-type: none"> <li>1) Build a relationship with riders, businesses, and stakeholders;</li> <li>2) Access potential markets;</li> <li>3) Develop a level of package delivery services;</li> <li>4) Develop integration of passenger and package delivery services;</li> <li>5) Collaborate with Intercity Bus Services and other package delivery companies; and</li> <li>6) Begin building a package delivery infrastructure.</li> </ol> <p>A strong and continuing support of WYDOT to transit services to add last mile package delivery will benefit transit agencies, their parent organizations, local communities, businesses, organizations, and e-commerce and shipping industries.</p>			
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APPROXIMATE CONVERSIONS TO SI UNITS				
Symbol	When You Know	Multiply By	To Find	Symbol
<b>LENGTH</b>				
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
<b>AREA</b>				
in <sup>2</sup>	square inches	645.2	square millimeters	mm <sup>2</sup>
ft <sup>2</sup>	square feet	0.093	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yard	0.836	square meters	m <sup>2</sup>
ac	acres	0.405	hectares	ha
mi <sup>2</sup>	square miles	2.59	square kilometers	km <sup>2</sup>
<b>VOLUME</b>				
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft <sup>3</sup>	cubic feet	0.028	cubic meters	m <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.765	cubic meters	m <sup>3</sup>
NOTE: volumes greater than 1000 L shall be shown in m <sup>3</sup>				
<b>MASS</b>				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
<b>TEMPERATURE (exact degrees)</b>				
°F	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C
<b>ILLUMINATION</b>				
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m <sup>2</sup>	cd/m <sup>2</sup>
<b>FORCE and PRESSURE or STRESS</b>				
lbf	poundforce	4.45	newtons	N
lbf/in <sup>2</sup>	poundforce per square inch	6.89	kilopascals	kPa
APPROXIMATE CONVERSIONS FROM SI UNITS				
Symbol	When You Know	Multiply By	To Find	Symbol
<b>LENGTH</b>				
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
<b>AREA</b>				
mm <sup>2</sup>	square millimeters	0.0016	square inches	in <sup>2</sup>
m <sup>2</sup>	square meters	10.764	square feet	ft <sup>2</sup>
m <sup>2</sup>	square meters	1.195	square yards	yd <sup>2</sup>
ha	hectares	2.47	acres	ac
km <sup>2</sup>	square kilometers	0.386	square miles	mi <sup>2</sup>
<b>VOLUME</b>				
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m <sup>3</sup>	cubic meters	35.314	cubic feet	ft <sup>3</sup>
m <sup>3</sup>	cubic meters	1.307	cubic yards	yd <sup>3</sup>
<b>MASS</b>				
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
<b>TEMPERATURE (exact degrees)</b>				
°C	Celsius	1.8C+32	Fahrenheit	°F
<b>ILLUMINATION</b>				
lx	lux	0.0929	foot-candles	fc
cd/m <sup>2</sup>	candela/m <sup>2</sup>	0.2919	foot-Lamberts	fl
<b>FORCE and PRESSURE or STRESS</b>				
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in <sup>2</sup>

Source: Turner-Fairbank Highway Research Center R&D

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The original map on page 14 (Literature Review) is the copyright property of Google® Maps™ and can be accessed at <https://www.google.com/maps>. The map overlays added by the authors show locations of bus stops where package services are available.

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## EXECUTIVE SUMMARY

In August 2015, Amazon, the largest online retailer, began exploring alternate solutions to improve last mile package delivery services, including the creation of “mobile pickup locations,” and creating its own delivery service in order to reduce shipping costs and improve shipping services to customers. These initiatives create opportunities for rural transit services to diversify their funding sources. It is likely that Amazon and other delivery companies may turn to the urban and rural transit industry to partner in last mile package delivery. Moreover, intercity bus systems currently provide package delivery on many routes. Rural transit systems may have an opportunity to join with the intercity bus systems to further extend the reach of the transit network. A key question faced by state departments of transportation and rural transit systems is, “How can I accommodate package delivery opportunities into my existing operations, given current regulations?” Given the growth in the delivery market, it appears to be the right time to investigate how rural transit may have a role in the last mile package delivery system. The goal of this project is to assess the feasibility of last mile package delivery as a revenue generation tool for rural public transportation systems in Wyoming. The objectives are:

- 1) Understand the impact of technologies and innovative last mile package delivery systems and how rural public transportation systems may have a role in the process.
- 2) Synthesize current last mile package delivery practices in public transportation systems in rural states.
- 3) Analyze policies of states regarding the use of public transportation for package delivery.
- 4) Estimate demand, capacity need, and revenue generation for rural transit systems in regard to last mile package delivery.

In an effort to assess the feasibility of using local public transportation systems in Wyoming for last mile package delivery, the research team conducted an in-depth literature review and surveyed local Wyoming businesses, state department of transportation officials, and transit managers.

A thorough literature review found that some public transportation agencies are currently providing package delivery services including large service providers like Greyhound and Postbus Courier (Germany) to smaller service providers like Flathead Transit in Montana and South Plains Community Action Association in Texas. A majority of rural transit agencies that deliver packages have some kind of collaboration with intercity bus systems (mainly Greyhound), thus, all follow the operating and regulatory policies of Greyhound. Beyond Greyhound’s policies, there are no specific policies or guidance related to last mile package delivery services by public transportation systems. The only policy that may affect this type of service is Federal Transit Authority (FTA) 5311 Formula Grants for Rural Areas. The FTA Circular 9040.1G pertaining to this grant guides that a rural transit provider may use a Section 5311 vehicle for non-passenger transportation on an occasional or regular basis, such as package delivery, if this incidental use does not result in a reduction of service, quality, or availability of public transportation service.

While a lack of guidance may be a barrier, last mile package delivery via public transportation systems is believed to provide many benefits including cheaper delivery options for customers, more reliable service in rural areas, and an additional revenue stream for public transportation systems. Coordination of service with passengers and packages must be addressed, as well as

ensuring that passenger service and service areas are not reduced, and that infrastructure and vehicles are redesigned to accommodate packages when necessary.

A survey of local businesses in Wyoming found that a large portion of respondents would not consider using local public transportation for last mile package delivery. Common concerns were for limited delivery area coverage, insufficient package tracking, and inconsistent package delivery. While a majority of the respondents stated that they would not use local public transportation systems for package delivery, they do believe that this type of service would provide cost savings and improved customer service. A survey of Wyoming public transit managers found that although some transit managers believed that last mile package delivery services could be a good source of extra revenue, there are concerns of a general lack of knowledge about package handling and lack of funding to retrofit buses. The survey of state department of transportation (DOT) officials found that about half of the respondents believe that last mile package delivery services should be offered by public transportation systems and that it would be a good source of extra revenue. However, it is believed that providing commercial package delivery will have many challenges, including coordinating pick-ups and drop-offs, integrating these services, and a general lack of knowledge about package handling.

There is a definite potential for last mile package delivery to provide additional revenue to local public transportation providers in Wyoming. Looking at the number of households in Wyoming, the researchers estimate that a potential revenue ranges from (\$24,005 in Niobrara County) to \$764,456 (in Laramie County). These estimates assume that public transportation systems would deliver 20 percent of the total estimated packages to a county.

Last mile delivery has seen a great deal of attention and is a daunting task to achieve for the manufacturers to sellers at local, regional, state, national, and global level. The e-commerce market is not just large, but highly dynamic and price sensitive. One fact is certain, there is a huge potential for rural transit agencies to earn extra revenue through package delivery to keep their systems financially feasible. The survey results, literature review, and demand and potential revenue suggest that the transit agencies have a needed capacity to add a package delivery service, a market for the service, and a facility to house the service. The following are specific recommendations that, if implemented, would help to initiate package deliveries in rural areas:

- 1) Build a relationship with riders, businesses, and stakeholders.
- 2) Access potential market.
- 3) Develop level of package delivery services.
- 4) Develop integration of passenger and package delivery services.
- 5) Collaborate with Intercity Bus Services and other package delivery companies.
- 6) Begin building a package delivery infrastructure.

This report provides an overview of last mile package delivery and the feasibility assessment of last mile package delivery as a revenue generation tool for rural public transportation systems in Wyoming. A strong and continuing support of Wyoming Department of Transportation (WYDOT) to transit services to add last mile package delivery will benefit transit agencies, their parent organizations, local communities, businesses, organizations, and e-commerce and shipping industries.

This report is divided into eight chapters: (1) Background Information; (2) Literature Review; (3) Survey of Commercial Entities; (4) Survey of Public Transportation Agencies; (5) Survey of

State Department of Transportation (DOT) Officials; (6) Regulatory and Package Delivery Allowance Policies Analysis; (7) Quantification of Commercial Package Demands and Revenue; and (8) Conclusions and Recommendations.

## BACKGROUND INFORMATION

Rural and small urban areas encompass 80 percent of the nation's landmass, but only 25 percent of United States (U.S.) citizens claim these areas as their home. Rural areas have more than 3 million miles of roads and carry 40 percent of all vehicle miles traveled. Many poor, senior citizens (almost 70 percent of all senior citizens), veterans, and disabled citizens choose rural and small urban areas due to low-priced housing, less traffic, low crime, low living cost, and natural beauty. Nearly 40 percent of the country's transit-dependent population live in rural and small urban areas (Lockwood 2004). Rural sprawl and larger geographical distances between activity centers influence the life of rural and small urban citizens for their income, mobility, culture, health care access, employment status, and access to many other livelihood services. Due to a lack of alternate transportation services, rural and small urban populations are more dependent on automobiles than their urban counterparts. Low population densities and larger geographical areas, an aging population, and limited resources put rural people and rural transit agencies in the difficult situations of accessing their routine livelihood services. States with dominant rural populations must address three important factors in order to have a reliable and safe transportation.

1. *Low Population Density and Larger Geographical Areas*: These factors often result in fewer riders and longer routes, and can negatively impact a rural transit's efficiency due to sheer cost in providing this kind of service. In rural areas, people tend to be widely spread out. Large geographical areas directly affect response time and impact operational costs. Rural transit agencies face difficulties in addressing vehicle maintenance, raising fuel costs, and staffing issues. Geographical areas of states such as Wyoming, Montana, New Mexico, and Colorado are predominantly rural or frontier. As shown in Table 1, there are 13 states where most of the counties have a population density of less than 20 people per square mile. In addition, many federally recognized Indian Tribes are also located in these states.

**Table 1: State and Frontier/Rural Areas**

State	Total # of Counties	# of counties with Population Density <20.0sq.mi*	# of Indian Tribes**	Projected % of Population Age 65 and Older (2030)
Wyoming	23	22	2	26.5
New Mexico	33	25	21	26.4
Montana	56	48	7	25.8
N. Dakota	53	49	5	25.1
S. Dakota	66	54	6	23.1
Arizona	15	9	22	22.1
Nebraska	93	69	4	20.6
Kansas	105	69	4	20.2
Nevada	17	13	21	18.6
Idaho	44	30	5	18.3
Colorado	63	41	2	16.5
Alaska	27	25	16	14.7
Utah	29	23	3	13.2

Note: \* Designated either frontier/rural area; \*\* Federally recognized Indian Nations

Source: \*\* [http://500nations.com/tribes/Tribes\\_State-by-State.asp](http://500nations.com/tribes/Tribes_State-by-State.asp)

Ref: U.S. Census Bureau, Population Division, Interim State Population Projections, 2005

2. *Aging Populations*: Senior citizens (65 and older) are the fastest grown population segment in the United States. By 2030, the senior population is projected to be 72 million, up from the current 35 million, which would be equal to 25 percent of the population of the United States (American Public Transportation Association 2010). More than 70 percent of senior citizens live either in suburban or rural areas due to low-priced housing, less traffic, low crime, low cost of living, and natural beauty (Community Transportation Association of America 2003). While more and more senior citizens continue to drive well into their 70's and even 80's, at some point they must find an alternative to driving their own vehicle. This decision of when to stop driving can be further complicated by a lack of alternative transportation. As the number (percentage) of Americans continues to grow with their rural living preferences, this age group will present new challenges for the 21<sup>st</sup> century's rural transportation system to provide convenient, safe, and sustainable transit service. With a rise in aging populations, rural areas will see increases in on-call and appointment-based transportation needs.

3. *Limited Resources*: In general, small urban and rural transit agencies work with very tight budgets. In fact, rural transit agencies must become more creative with their operational budgets and local match. Raising the necessary local match with limited resources is key to sustaining rural transit services. Rural transit organizations will have to equip themselves to better deal with scheduling issues and depleted resources resulting from the impact of aging populations. High demand for customized routes and erratic scheduling, as well as expectations of efficiency and effectiveness, tend to strain rural transit resources.

In Wyoming, a rural and frontier state, most counties have their own transit system and are being operated by local transit and social service organizations. However, only 17 of 90 cities and towns listed by the United States Census Bureau are connected to intercity bus services. In 2016, the Western Transportation Institute at Montana State University conducted a survey of the Wyoming transit managers to identify challenges to operate transit services between towns. The survey results indicate that the transit agencies need additional funding and vehicles to improve transit services. Moreover, the majority (17 of 21) of transit agencies noted that intercity bus needs were being met "Not Very Well" or "Not at All." This survey was conducted as a part of the Wyoming Department of Transportation's Wyoming Intercity Bus Service Study. Similar concerns are prevalent among other states such as, California, Colorado, Montana, Nevada, Oregon, South Dakota, Utah, and Washington.

As indicated by the Wyoming Public Transit Association (WYTRANS 2016):

- 1) Rider demand is increasing by an average of 12 percent per year for transit agencies. Transit agency costs are increasing 16.7 percent per year per ride.
- 2) The agencies have an average shortfall of \$28,400 in meeting the demand for transit services, and need to find 20 percent of their budget, an average of \$28,400 per year, to provide enough service to meet demand.
- 3) Local match sources are projected to decline in 15 percent of the agencies, with 66 percent projecting a stable local match source. Seventeen percent project an increase in local match.

- 4) The typical van costs \$30,000, while the typical 12-15 passenger bus costs about \$45,000. The estimated replacement cost for the state-wide fleet is \$10 million. The typical economic life of a van or bus is five years. The average age of the vehicles in the Wyoming Public Transit fleet is 5.74 years.
- 5) The average fare or suggested donation requested by the transit agencies is \$1.56. This averages out to be less than 30 percent of the total cost of each ride, which is one person one way. A return trip home from the doctor's office is a separate trip.
- 6) At the same time, the transit agencies estimate that only 20 percent of their riders could pay more for a ride.

In addition, the Wyoming Intercity Bus Service Study recommended that WYDOT focus on providing intercity bus services to the central and the northwest parts of the state and strive for 85 percent (24 of 28 cities with population over 2,000) of these most populated cities in Wyoming to be connected to an intercity bus (ICB) service provider or, at a minimum, a more populated city. The following routes (Table 2) are proposed to achieve 85 percent threshold for the intercity bus service coverage.

**Table 2: Proposed Routes and Major ICB Destination (Chaudhari, Kack and Vasquez May 2016)**

Route	Cities	Population	Major ICB Destination
1	Lander	7,642	Casper
	Riverton	10,953	
2	Cody	9,740	Billings (MT)
	Lovell	2,404	
	Powell	6,407	
3	Thermopolis	3,020	Casper
	Worland	5,366	
4	Lusk	1,578	Cheyenne
	Torrington	6,738	
5	Greybull	1,868	Billings
	Worland	5,366	
6	Newcastle	3,513	Gillette

The total annual cost of the proposed routes equals \$144,300. Given the match ratios (match funding) provided by WYDOT, it is assumed that the local share would be approximately 42 percent, or an annual total of \$60,606. The FTA/WYDOT share would be \$83,694. (Chaudhari, Kack and Vasquez May 2016)

In order to provide adequate local and ICB services in Wyoming, new financial resources are needed as local match to obtain federal grants. Usually, transit agencies in rural areas largely depend on the local governments, county governments, and a few nonprofit organizations for support. There is a need in Wyoming for transit agencies to look beyond the traditional sources of funding to operate services. Many studies have been conducted to explore various financial resources, however, none are focused on the emerging market of the package delivery through transit systems.



In August 2015, Amazon (the largest online retailer) announced that it was creating its own package delivery system through its invented moving lockbox facility—“Mobile Pickup Locations.” (K. Bhatt 2015). Instead of delivering products to customers’ resident and office addresses, customers can opt for a mobile pickup location delivery. Amazon is exploring this and other solutions such as Amazon Flex, a program with Uber to curb rising shipping costs, to improve last mile delivery services in rural areas, and to develop its own full-blown delivery network. These initiatives create opportunities for rural transit services to diversify their funding sources. It is likely that Amazon and other delivery companies may turn to the small urban and rural transit industry to partner in last mile package delivery. Moreover, intercity bus systems provide package delivery on many routes. Rural transit systems can join with the intercity bus systems to further extend the reach of the transit network. A key question faced by state departments of transportation and rural transit systems is, “How can I accommodate package delivery opportunities into my existing operations, given current regulations?” Other questions pertaining to this opportunity include: state DOTs’ policies regarding package delivery; modification of transit operations; potential modifications to transit vehicles; driver training issues; demand/capacity for package delivery on rural systems; and revenue forecasts. Given the growth in the delivery market, it appears to be the right time to investigate how rural transit may have a role in the last mile package delivery system. The purpose of this project is to address the concerns raised here and to identify new financial resources for rural transit systems of Wyoming.

The proposed project is aligned with the six overall goals from the 2012-2015 WYDOT Strategic Plan, which are:

- 1) Improve Safety on the State Transportation System.
- 2) Serve Our Customers.
- 3) Improve Agency Efficiency and Effectiveness.
- 4) Take Care of All Physical Aspects of the State Transportation System.
- 5) Develop and Care for our People.
- 6) Exercise Good Stewardship of Our Resources (WYDOT, 2014).

The goal of this project is to assess the feasibility of last mile package delivery as a revenue generation tool for rural public transportation systems in Wyoming. The objectives are to:

- 1) Understand the impact of technologies and innovative last mile package delivery systems and how rural public transportation systems may have a role in the process.
- 2) Synthesize current last mile package delivery practices in public transportation systems in rural states.
- 3) Analyze policies of states regarding the use of public transportation for package delivery
- 4) Estimate last mile package delivery demand, capacity need, and revenue generation for rural transit systems.

## **LITERATURE REVIEW**

The purpose of this chapter is to review literature and other available information pertaining to internet shopping trends, commercial package delivery systems in rural areas, trends in package delivery through public transportation systems, and state departments of transportation's policies on package delivery. The research approach employed a comprehensive literature search through sources such as, but not limited to, the Transportation Research Information Service (TRIS), Google Scholar, the Montana State University Library, SCIFinder Scholar, and other databases. The following sections summarize and discuss the literature identified by this effort.

This chapter is organized into six sections: (1) E-commerce and the Last Mile Delivery; (2) Rural Transit – Facing Declining Resources; (3) Making the Connection – Freight on Transit; (4) Existing Freight on Transit; (5) Commercial Package Delivery Policy; (6) Intercity Package Services Locations in Wyoming; and, (7) Summary.

### **E-commerce and the Last Mile Delivery**

E-commerce, or business conducted on the Internet, is on the rise. Globally, e-commerce exceeded \$1.5 trillion in 2014. Over 50 percent of books, clothing, and consumers' electronics are now purchased online. This increase in e-commerce has created an increasing importance on package delivery services. In 2013, United States consumers spent more than \$68 billion to have packages shipped domestically (USPS 2014). In 2013, products ordered online resulted in over one billion deliveries. This number is expected to grow by 28.8 percent to 1.35 billion deliveries by 2018 (Barclays 2014). From 2008 to 2013, the United States Postal Service (USPS) saw an increase in package volume by over 20 percent. In FY 2013 this resulted in \$11 billion in revenue and \$9 billion in costs related to package delivery (USPS 2014).

With e-commerce growing rapidly, there is an increasing pressure to provide quick and efficient delivery of goods at a low price. For package delivery, the last mile is from the last point of distribution to the final destination (a residence or place of business). The "last mile" distance can be hundreds of miles and is generally the most expensive and inefficient portion of the delivery process. In the United States, 95.9 percent of deliveries occur at a home or office (Barclays 2014). Last mile delivery of goods is expected to grow, especially in rural areas. Rural areas can be a challenging for efficient last mile deliveries due to larger geographical distances between destinations. An additional challenge shipping companies face is attempting to deliver a package while the recipient is not present, which can result in package damage or theft. This could be a large issue in rural areas where the shipping company must travel a long distance for the delivery and the option to return when the recipient is present is not efficient.

Currently the United States package delivery market is dominated by the USPS, United Parcel Service (UPS), and Federal Express (FedEx), but the package delivery market is rapidly changing as demand has increased and created the need for inexpensive and fast delivery. While shipping companies and retailers place a great value on low delivery costs, reliability, and ease of use, consumers demand low cost and speed when it comes to package delivery. This is requiring retailers to innovate to provide quality service.

Amazon is exploring many solutions to reduce shipping costs and make last mile delivery services more efficient. Amazon recently obtained its own fleet of vehicles to make deliveries allowing for more flexibility in delivery timeframes and reducing costs. In August 2015, the United States Patent and Trademark Office approved a patent entitled, “Mobile Pickup Locations” filed by the Amazon Technologies, Inc. Mobile Pickup locations is a lockbox installed at fixed locations, such as bus stops, railway stations, airports, and at mobile locations, such as buses and trains (M. Bhatt 2015). Instead of delivering products to a customers’ residence or office, a customer can opt for a mobile pickup location delivery. In areas where package delivery is infrequent or expensive, such as rural areas, the mobile pickup location may be in a nearby town that could help reduce the rising costs of shipping.

Further, delivery options that have been explored recently include crowd sourced delivery where a driver or shopper delivers goods directly from a store to the customer. Companies like Deliv and Instacart have shown that this is a successful option in urban areas even though they are a more expensive option (Cunnane 2015).

The increasing need for innovation in package delivery services has opened the opportunity for rural transit services to enter the package delivery market. After realizing that transit agencies are already serving the routes necessary to provide package delivery, corporate giants, such as Amazon, may eventually turn to the small urban and rural transit industry to partner in last mile package delivery. Many intercity bus systems are already providing package delivery services on many routes. Rural transit systems could look to partner with the intercity bus systems network in order to extend a service area.

### **Rural Transit – Facing Declining Resources**

Societal changes in rural areas are affecting rural transit agencies. Many rural residents are commuting long distances to urban areas for jobs. Changing family structure, elderly people, lower income families, and minorities in rural areas have created an increased need for mobility options as resources dwindle. Providing transit services in rural areas is costly because of long distances and limited ridership.

In response to these changes, the Transit Cooperative Research Program (TCRP) has recommended that rural transit operators develop new standards and move beyond traditional transit services in order to meet the transportation needs of the rural public (Rosenbloom 2003). In general, transit agencies have been slow to adapt to societal changes, are facing situations which question their relevance, and need to consider ways in which to evolve to meet the demands of the public.

A study completed by Rosenbloom, of the Roy Drachman Institute, considered five ways in which rural transit agencies can adapt to meet rural mobility needs (Rosenbloom 2003):

- **Serve as community change agents**, or transit agencies should actively participate in local, county, and regional government committees that make decisions on how and where a community will develop. By acting on these communities, the transit agency can work to make public transit a more efficient and attractive option to the community it serves.

- **Optimize community transportation resources**, or implement ways to facilitate the most efficient use of public and private vehicles. This could be accomplished in many ways including rideshare or car share programs.
- **Adopt technology and innovation**, or focus on improving communication and dispatching technology.
- **Become multifunction public entrepreneurs**, or establish how to maximize the transit system output with limited resources. This could be accomplished by offering delivery services. A transit agency could partner with an urban transit operator, an agency on aging to provide meal services, grocery delivery service, package delivery services, or Americans with Disabilities Act (ADA) services. A transit agency could also contract with shipping companies to deliver packages from the post office to rural residents.
- **State-of-the-art service**, or innovation of transit services. Rural transit agencies could promote transit use by expanding their service areas to better meet the needs of the public or by offering fares depending on the service (offer low fares during off-peak travel times, etc.).

Alternative revenue streams could offer rural transit operators diversified funding and potentially leverage increased typical funding by providing a local match. As an alternative revenue generating service and a solution to the need for package delivery services in rural areas, transit operators could partner with package delivery companies or intercity bus agencies in order to provide last mile package delivery services via existing demand response door-to-door transit service.

### **Making the Connection – Freight on Transit**

Freight on transit, or the use of public transit vehicles to move things other than passengers, is a fairly new concept. Freight on transit can occur as two different types:

- Freight on existing public transit trips, or
- Creating new trips for freight on public transit. (Cochrane, et al. 2016)

Currently, public transit agencies generate revenue via ticket sales (fares), advertisements, Federal government funding, and local (match) funding. These subsidies are considered necessary in order to provide transportation for people without automobiles, to reduce congestion, to reduce emissions, and to lower road maintenance costs. Package delivery via rural public transit vehicles could help provide revenue for underutilized public transit and could help reduce costs for shipping companies.

But many questions remain: Would freight on transit reduce the level of service for passenger operations? What are the benefits, and are they worth the associated costs and risks? When questioning why buses are not currently used for small package delivery, Don Bruch, Director of Distribution and Transportation for West Bend Company (Wisconsin), said, “*Why use buses when you can get good service with other carriers that don’t have the limitations that buses do?*” (Heydt 1984). There are concerns about the trade-offs when using a bus instead of a shipping company that include limitations on package size, as well as package tracking options.

Edwin Broschart, a Traffic Manager for the United States Playing Card Company, believes that package delivery services by intercity buses such as Trailways would benefit from greater marketing efforts to obtain small package shipments (Heydt 1984). Previously, Trailways has focused their ads in transportation magazines only, and many shippers could be unaware of the services that Trailways offers. Many companies argue that they would not use intercity bus package delivery services because they do not offer pickup and delivery services, however, this is a feature that Trailways *does* offer. Depending on the Trailways operation in a particular city, pickup and delivery service can mean one of three things: door-to-door, terminal-to-door, or door-to-terminal service. Trailways has focused on delivering to areas that are not served by other carriers in an attempt to reach areas that are too small to be profitable for other modes.

There are very few examples of freight on transit operations worldwide. This seems to be due to the resistance to change by the involved stakeholders (Cochrane, et al. 2016). A project conducted by Cochrane et. al used a Delphi Study or a multi-round web-based, anonymous survey of transportation experts in freight, public transit, intelligent transportation systems, urban planning, and economics in order to understand the issues involved with package delivery via public transit. The first round of the survey asked opened ended questions. Primarily it looked for the participants to list the pros, cons, and challenges of freight on transit. The second and third rounds of the survey asked the participants to rank the answers from the first round on a one to five scale (weak argument to strong argument) (Cochrane, et al. 2016).

The top positive impacts listed were:

- Reduced emissions/fuel/energy usage
- More efficient use of transportation network/capacity
- Reduced congestion
- Cheaper deliveries
- More reliable deliveries
- Revenue for transit agencies

The top negative impacts listed were:

- Reduced level of service on transit networks
- Additional handling and employees to deliver goods
- More expensive to shippers
- Limited to areas served
- Damage and reduced maintenance time for transit vehicles
- Legal issues with taxes supporting private businesses
- Conflicts between passengers and freight

The top challenges discussed were:

- Redesign of stations and infrastructure
- Moving freight without disrupting transit services
- Designing vehicles
- Making freight on transit economically viable
- Coordinating stakeholders
- Resistance from stakeholders

While there are apparent benefits of package delivery via transit, it is not fully understood if the benefits will outweigh the costs. Further, exploration is necessary to determine how package delivery via transit could work to provide additional revenue to transit agencies. Package delivery by transit to rural areas will depend largely on passenger volume as well because package delivery service alone would not justify the costs associated with maintaining a bus service where there is no passenger interest.

### **Existing Freight on Transit**

There are many examples of intercity bus package services. Some examples are provided below.

#### ***Greyhound Package Express (United States)/Greyhound Courier Express (Canada)***

Greyhound, the intercity bus operator, offers package delivery services within the United States and Canada. Greyhound is one of the most extensive package services in North America and specializes in same-day regional delivery and overnight services. Greyhound offers pickup and delivery in over 200 cities, has the ability to track packages, and has been slowly expanding their services over time (Heydt 1984). Packages are stored in the luggage bay of the bus or on a cargo trailer during delivery. This package delivery service creates an additional revenue stream that offsets the cost per passenger mile while providing package delivery services to areas that are not typically served by express carriers (Cochrane, et al. 2016). Greyhound's package delivery service saw about \$80 million in revenue in 1999, which accounted for about 7 percent of their total revenue (Allen 2000).

#### ***Matkalhuolto (Finland):***

The Finnish bus company, Matkalhuolto, offers package delivery service to 10,100 locations in Finland. Matkalhuolto uses existing transit trips to provide package services, the revenue generated by package delivery is used to improve passenger service, and the freight abilities strengthen the business case for adding new routes to more rural areas.

#### ***Postbus Courier (Germany)***

Deutsche Post DHL Group began testing a new service in 2015 that will allow customers in Berlin and Hamburg package delivery between the two cities. Postbus Courier offers same-day delivery on its bus network and is the first bus provider in Germany to also provide package delivery service. "*Postbus Courier is a new same-day delivery option that gives our customers another choice, using our intercity bus network for shipping particularly urgent items.*" said Achim Dünwald, CEO of Mail Communication at Deutsche Post and designated head of DHL Parcel (DHL Global 2015). This new service is expected to cost 20 EUR. If successful, DHL hopes to expand this service to other cities in the future.

## ***Texas***

In 2016, Texas A&M Transportation Institute launched a commercial package delivery pilot program for rural transit systems funded by the Texas Department of Transportation. Workshops conducted for this pilot program indicate that the rural transit agencies are very keen to explore commercial package deliveries as a funding source for their transit systems. This study found that the following three small and urban rural transit systems formed various partnerships with the intercity bus systems and other local systems to deliver packages.

Capital Area Rural Transportation Systems (CARTS) has partnered with Greyhound as connecting passenger and package services within its jurisdiction. This system also serves as the Greyhound agent to sell tickets and package services.

Southwest Area Regional Transit District started providing package deliveries in 2016 in partnership with Greyhound in Dimmit, Edwards, Kinney, La Salle, Maverick, Real, Uvalde, and Zavala counties. Currently, it has a package delivery contract with Advance Headstart for transportation and delivering interoffice mail, and other business-related items.

South Plains Community Action Association, which provides public transportation in 17 counties of central Texas, has formed a joint partnership with West Texas Opportunities' transportation program, which provides public transportation services in 22 counties of west Texas, to deliver packages for the health clinics of South Plains Rural Health.

Extra revenue through package deliveries remained as the primary motivation for transit agencies to deliver packages. The average package delivery revenue is approximately \$4,724 each year for the transit agencies engaged in package deliveries (Edrington, Elgart, et al. 2017).

## ***Montana***

Jefferson Lines in Montana provides a package service for Missoula, Butte, Bozeman, Livingston, Billings, Miles City, Glendive, and Sidney. This service has four or five packages a day originating in Montana, and the same number with a Montana destination. Around 2,920 to 3,650 packages per year are being handled by the Jefferson Lines in Montana.

Flathead Transit of the Confederated Salish Kootenai Tribes operates an intercity route providing connections to Greyhound in Missoula, Amtrak in Whitefish, and local and regional services in Missoula and Kalispell. The route operates seven days a week, serving eight communities between Missoula and Whitefish. This service is an extension of Greyhound/Jefferson Lines service, and delivers packages along the way (Musil 2017).

## **Commercial Package Delivery Policies**

Rural public transportation (transit) receives financial assistance from FTA to develop new transit systems and improve, maintain, and operate existing systems through respective state governments. A majority of rural programs receive the grants from the FTA Funding formula known as the 5311 program. FTA Circular 9040.1G, which pertains to this grant, guides that a rural transit provider may use a Section 5311 vehicle for non-passenger transportation on an

occasional or regular basis, such as package delivery, if this incidental use does not result in a reduction of service quality or availability of public transportation services (FTA C 9040.1G 2014).

Other than this policy statement, no specific package delivery policies or guidance is available for rural transit systems.

### **Intercity Package Services in Wyoming**

Package express services are already being offered in some locations in Wyoming through intercity bus services, and very limited to individual shipments. This encompasses individuals coming into intercity bus stops in Laramie, Wyoming and Evanston, Wyoming, and shipping single or multiple packages on one of the scheduled intercity buses. Primarily, Greyhound Lines, Jefferson Lines (limited to Buffalo, Wyoming), and Black Hill Stages provide these services at five locations (Table 3) in Wyoming. A majority of package deliveries belong to private clients. Commercial clients such as hospitals, grocery services, private entities, shopping outlets etc. do not use this existing system in Wyoming.<sup>1</sup>

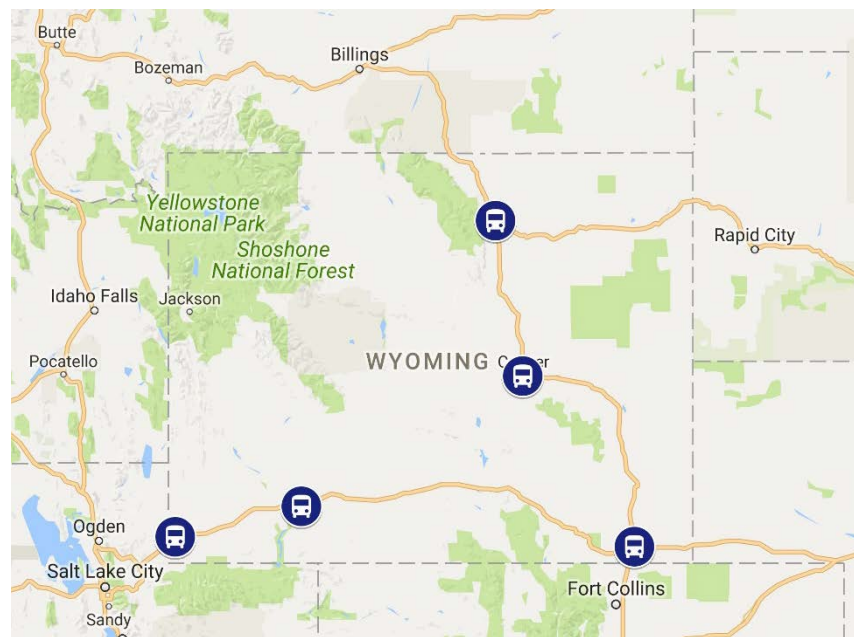
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<sup>1</sup> Email conversation with Stephen Abernathy Senior Manager, Intermodal Alliances Network Development, Greyhound Lines, November 10, 2016.



**Table 3: List of Bus Stops in Wyoming with Package Services (Trailways Transportation System n.d.)**

Location	Bus Company	Website
Buffalo, WY	Greyhound Lines	<a href="http://www.shipgreyhound.com/e/pages/Home.aspx">http://www.shipgreyhound.com/e/pages/Home.aspx</a>
Buffalo, WY	Jefferson Lines	<a href="https://www.jeffersonlines.com/other-services/package-express/">https://www.jeffersonlines.com/other-services/package-express/</a>
Casper, WY	Greyhound Lines	<a href="http://www.shipgreyhound.com/e/pages/Home.aspx">http://www.shipgreyhound.com/e/pages/Home.aspx</a>
Cheyenne, WY	Greyhound Lines	<a href="http://www.shipgreyhound.com/e/pages/Home.aspx">http://www.shipgreyhound.com/e/pages/Home.aspx</a>
Evanston, WY	Greyhound Lines	<a href="http://www.shipgreyhound.com/e/pages/Home.aspx">http://www.shipgreyhound.com/e/pages/Home.aspx</a>
Rock Springs, WY	Greyhound Lines	<a href="http://www.shipgreyhound.com/e/pages/Home.aspx">http://www.shipgreyhound.com/e/pages/Home.aspx</a>



Original Map: © 2017 Google® (see Acknowledgements section).

**Figure 1: Map of Bus Stops with Package Services (Trailways Transportation System, n.d.)**

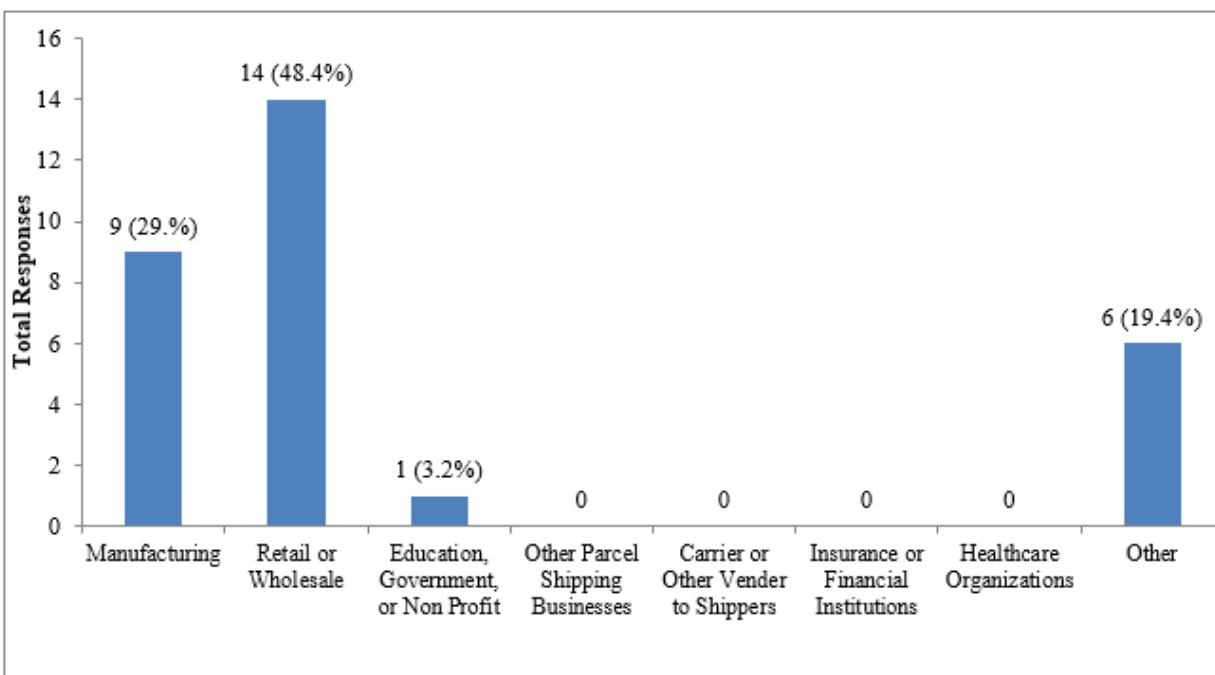
## Summary

The literature review indicates that last mile delivery has drawn a great deal of attention. To provide a cost effective last mile package delivery is a daunting task to achieve for the manufacturers to sellers at local, regional, state, national, and global level. The e-commerce market is not just large but highly dynamic and price sensitive. Consumers are looking for faster home delivery options, even if they live in the rural areas. The world is bracing for generational change in package deliveries that will include the participation of autonomous and drone vehicles, and non-traditional participants, such as transportation network companies and rural transit systems. One fact is certain, there is a huge potential for rural transit agencies to earn extra revenue through package delivery in order to keep their systems financially feasible.

## SURVEY OF COMMERCIAL ENTITIES

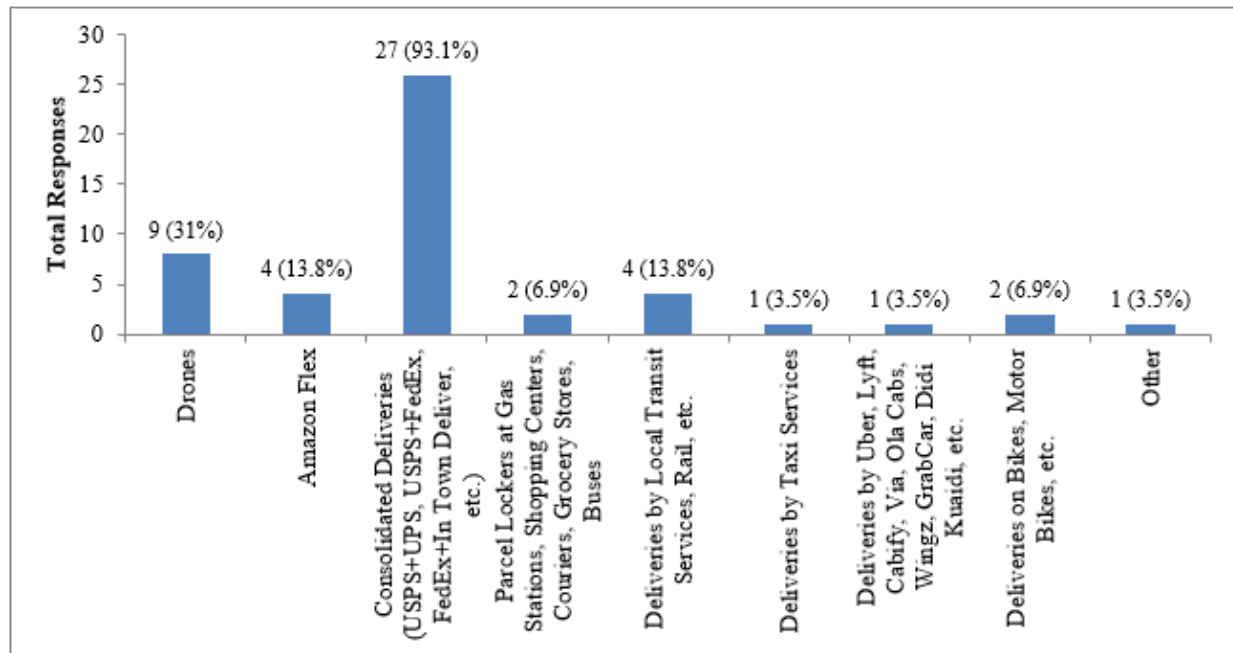
In addition to the literature review, a survey was created and sent to local businesses in Wyoming listed on the Wyoming Business Council website. An introductory email that included a link to the online survey tool-Survey Monkey-was sent to the local business contacts. The email noted that participation in the survey was voluntary, and that the respondents had the choice to skip any question. Out of the 278 Wyoming businesses that were sent the survey, 31 responded for an 11.2 percent response rate. The full commercial entity survey is provided in Appendix 1: Commercial Entity Survey.

The survey began with a brief introduction, then asked the respondent what type of business they were representing (Figure 2). Retail or wholesale business was the most common, with 15 respondents (48.4 percent), followed by manufacturing with nine respondents (29 percent). Six respondents (19.4 percent) replied as “other”, and specified that they were involved in promotional products distribution, arts, woodworking, and graphic design.



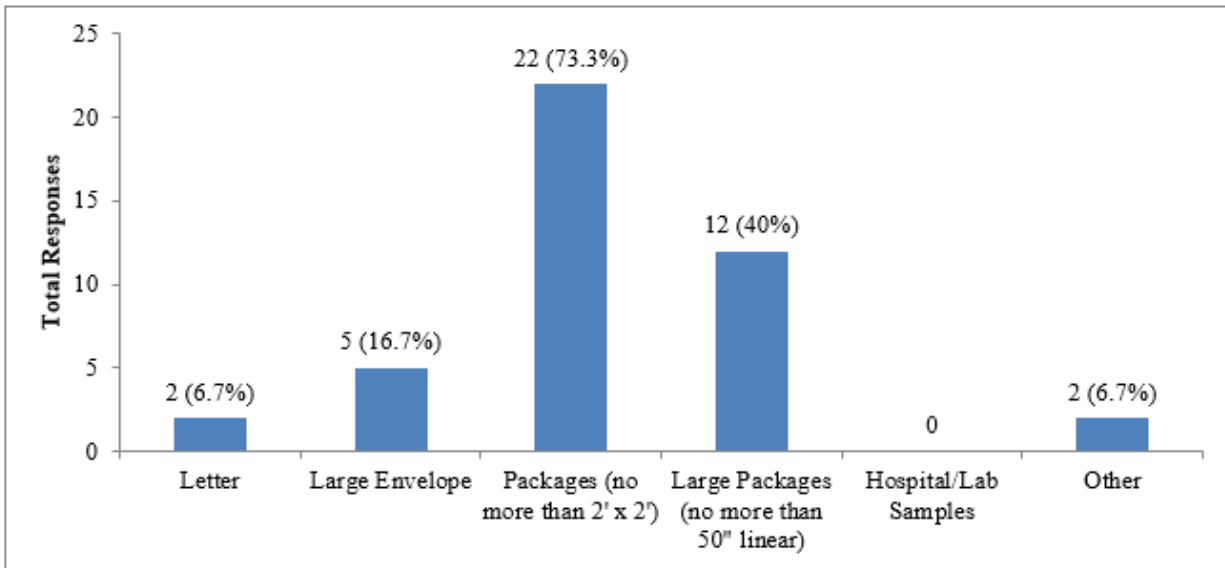
**Figure 2: Types of Businesses Completing the Commercial Entity Survey**

The survey then asked if the respondents were familiar with any innovative methods for last mile commercial package delivery (Figure 3). Two respondents skipped this question. Twenty-seven respondents (93.1 percent) were familiar with consolidated delivery, including using USPS and UPS, or USPS and FedEx. Nine respondents (31 percent) were familiar with using drones for commercial package delivery. Only four respondents (13.8 percent) were familiar with using local transit services for last mile commercial package delivery. One respondent (3.5 percent) replied “Other”, and stated that they were not familiar with any of these options.



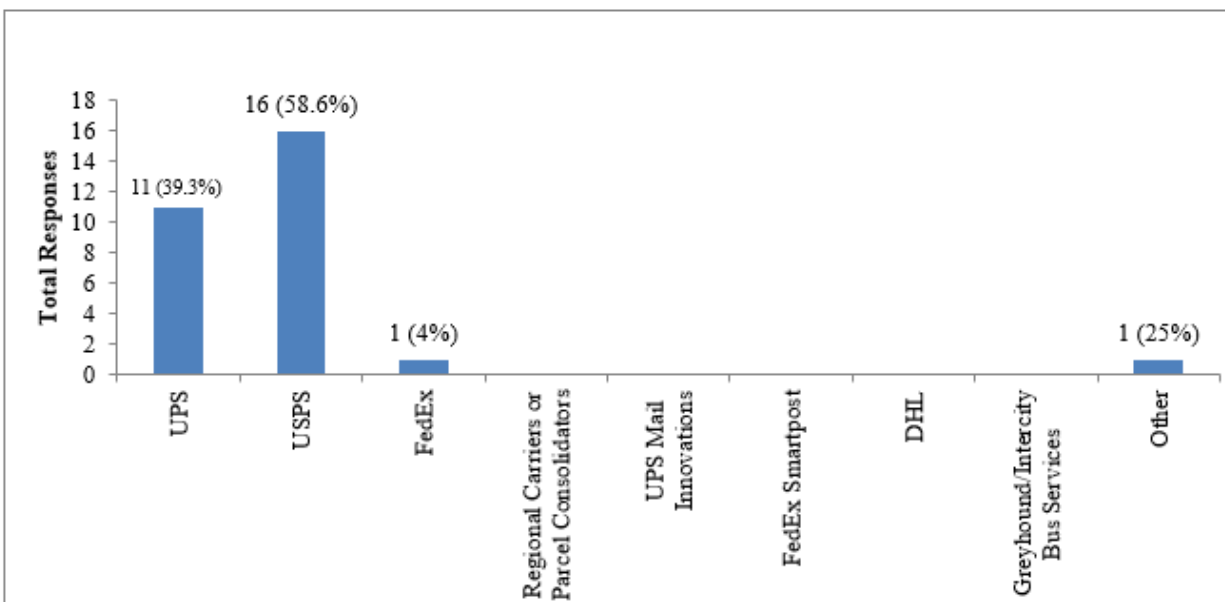
**Figure 3: Businesses Familiarity of the Innovative Ways of Last Mile Commercial Package Delivery**

The next question asked the respondents how many packages they ship monthly on any carrier. Twenty-eight respondents (90.3 percent) ship less than 100 packages per month. The remaining three respondents (9.7 percent) ship between 101 and 500 packages per month. A follow-up question asked to provide information on what types of packages they were shipping, see Figure 4. One respondent skipped this question. The most common type of package that was being shipped by respondents was “regular package (no more than 2’ by 2’)” which were shipped by 22 respondents (73.3 percent). Twelve respondents (40 percent) were shipping “large packages (no more than 50” linear).” Two respondents (6.7 percent) replied with “Other”, and specified that they were shipping unframed art and miscellaneous sized packages that were not listed in the available options.



**Figure 4: Types of Packages Being Shipped**

In order to determine what package carriers respondents are using, the survey asked which three package carriers they use most frequently. Respondents were asked to rank their top three package carriers from one to three. The two most frequently used package carriers were USPS and UPS (Figure 5) followed by Fedex. None of the respondents replied that they were using Greyhound or intercity bus services as one of their top three package delivery services.



**Figure 5: Most Frequently Used Package Carriers by Businesses**

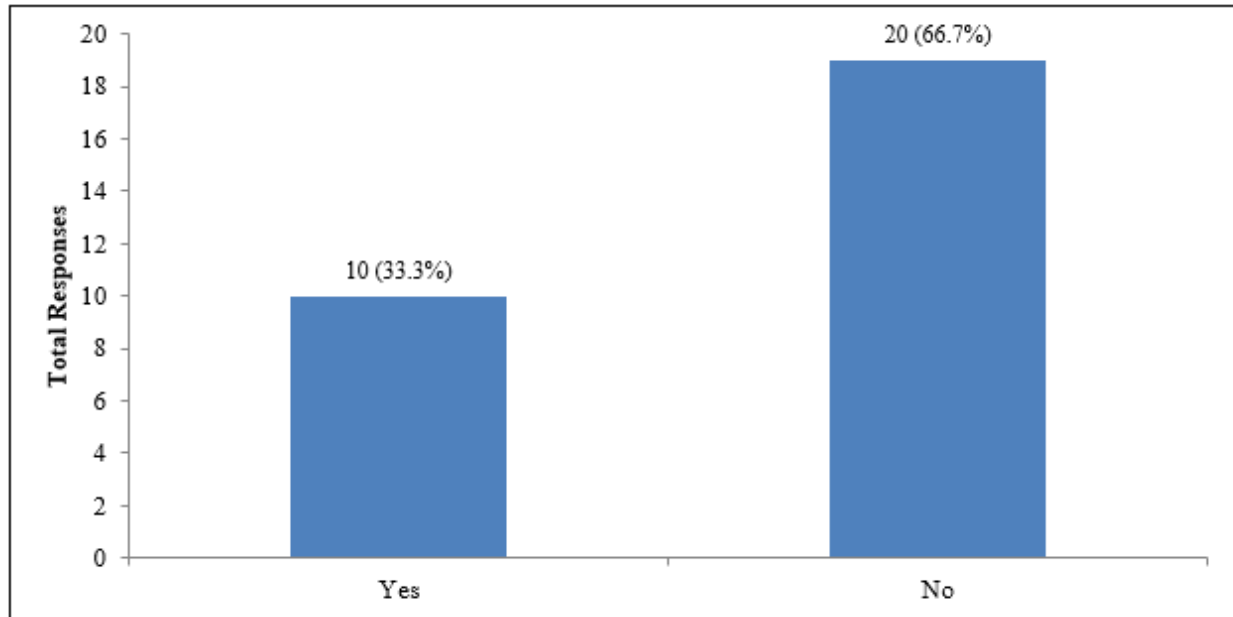
Respondents were asked what the estimated percentage of package shipments were shipped within their state versus out of state. As illustrated in Table 4, on average, most of the respondents were shipping more packages out of state than in state. Three respondents skipped this question.

**Table 4: Percentage of Packages Shipped In State vs. Out of State**

	Minimum Percentage	Maximum Percentage	Average
<b>In State</b>	0%	95 %	40.5%
<b>Out of State</b>	5 %	100%	61.4%

Respondents were asked if they had ever used Uber, Lyft, or Via for delivering food, packages, goods, etc. None of the respondents had used these services. This may be because services like Uber were just launched in Wyoming as of March 2017.

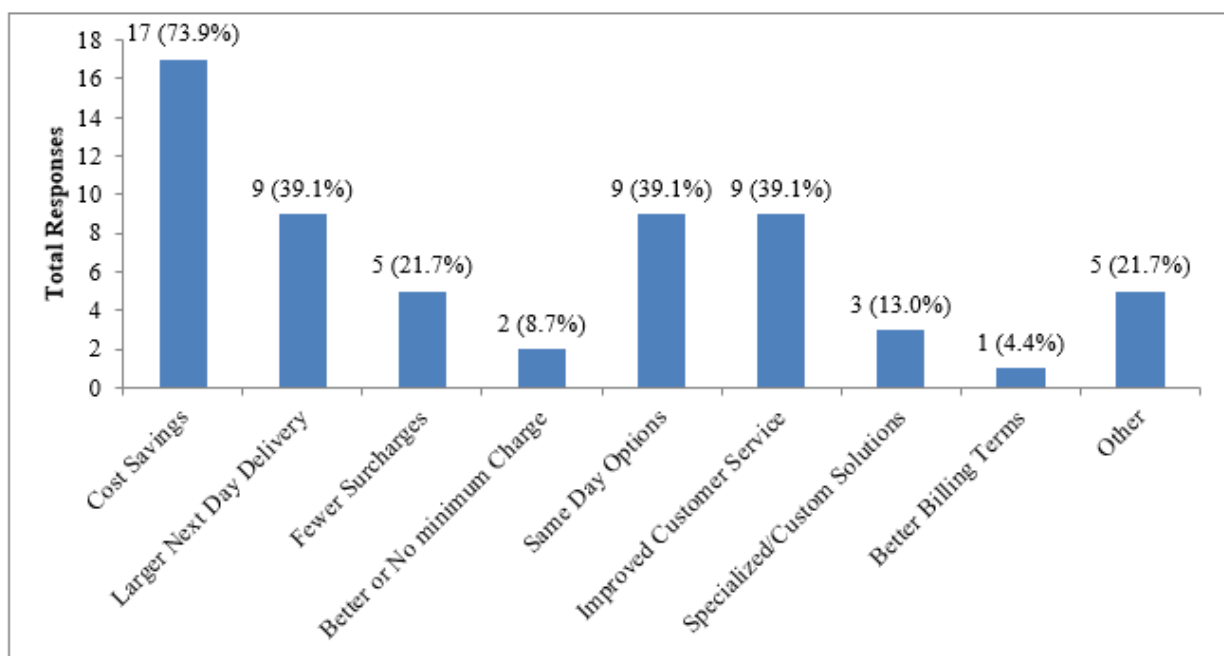
Respondents were asked if they would like to use their local public transportation system to provide last mile package delivery. As shown in Figure 6, only ten respondents (33.3 percent) would consider using local transit for package delivery (one respondent skipped this question). The low interest in using local public transit for package delivery may be due to the lower number of packages that these businesses are shipping within the state of Wyoming, as previously shown in Table 4.



**Figure 6: Likelihood of Local Public Transportation System's Use for Providing Last Mile Package Delivery**

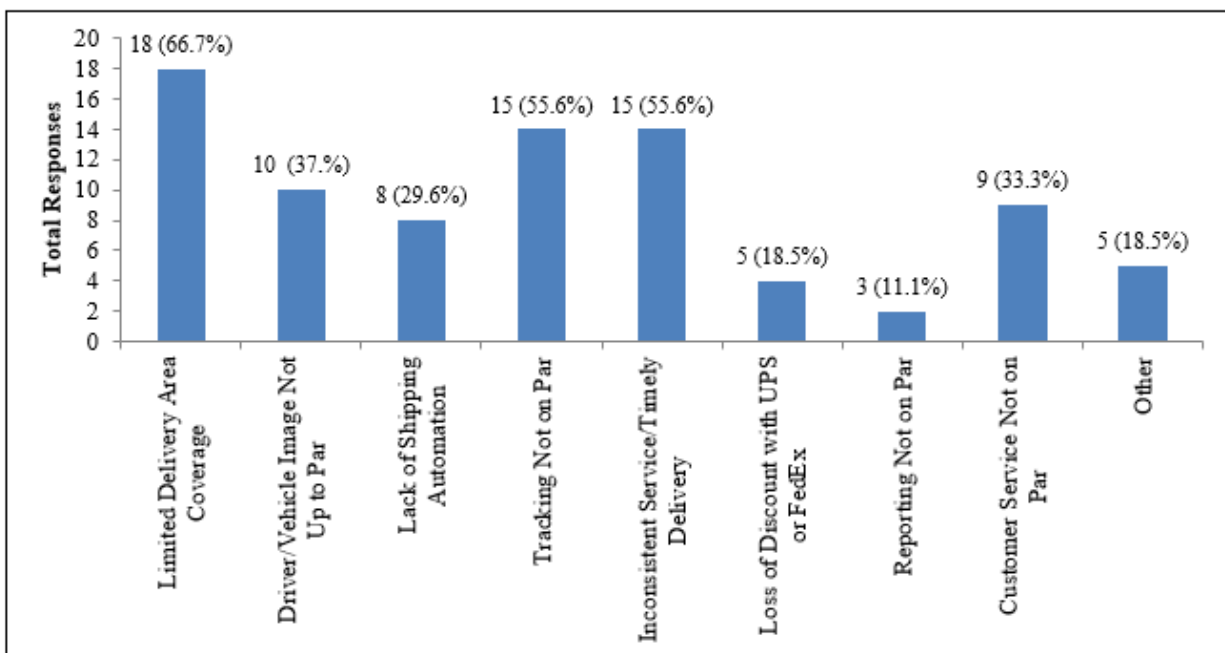
When asked what percentage of overall package business would go to the transit system, the responses varied. Thirteen respondents skipped this question. Four respondents (22.2 percent) stated that there was not a local system in their area. The remaining responses were between zero percent and 50 percent of packages estimated to be delivered via public transit.

Figure 7 provides a summary of responses to a follow up question asking respondents what benefits they expect from using local public transportation systems as a package delivery service. A majority, 17 respondents (73.9 percent), agree that cost savings is a benefit of using public transportation systems as a package delivery service. Nine respondents (39.1 percent) believe local transportation will provide larger next day delivery, same day options, and improved customer service. Five respondents (21.7 percent) replied with “Other,” including noting that public transportation systems could provide package service for special sized packages (i.e. live edged lumber). Eight respondents skipped this question.



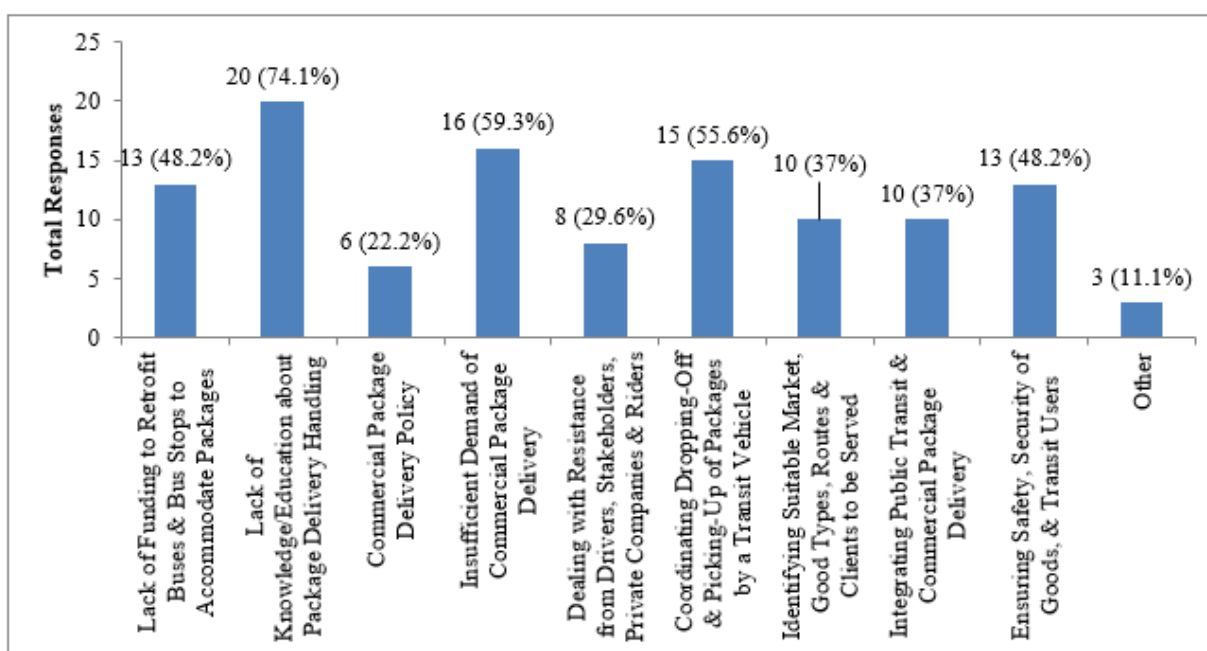
**Figure 7: Expected Benefits from Using the Local Transportation Systems as a Package Delivery Service**

In addition to the benefits, respondents were asked about concerns of using public transportation systems for last mile package delivery. As shown in Figure 8, the most common concern was “limited delivery area coverage” (18 respondents or 66.7 percent). Additionally, 15 respondents (55.6 percent) were concerned about “tracking not on par” and “inconsistent service/timely delivery.” Five respondents (18.5 percent) replied “Other,” describing concerns related to the fear of damaged items, weather in rural Wyoming, and not understanding the delivery limitations of package delivery by transit services. Four respondents skipped this question.



**Figure 8: Concerns to Using the Local Transportation System as a Package Delivery Service**

Respondents were also asked about potential challenges in starting last mile package delivery services by local transit services. As summarized in Figure 9 twenty respondents (74.1 percent) believe the most common challenge was “lack of knowledge/education about package delivery handling.” Additional challenges include “insufficient demand of commercial package delivery” (16 respondents or 59.3 percent), “coordinating dropping-off and picking-up of packages by a transit service” (15 respondents or 55.6 percent), and “ensuring the safety and security of goods and transit users” (13 respondents or 48.2 percent). Three respondents (11.1 percent) replied “Other,” and included “a lack of service” and “route times/schedule/length” could be impacted negatively for riders. Four respondents skipped this question.



**Figure 9: Challenges in Starting Last Mile Package Delivery by Local Transit Services**

Respondents were then asked if they believe that last mile commercial package delivery could be a good source of extra revenue for a local transit system. Eighteen respondents (62 percent) stated that they do believe package delivery services could be a good source of revenue. Two respondents skipped this question.

Finally, the respondents were asked if they had any additional comments related to package delivery services integrated with public transportation. Thirteen respondents (41.9 percent) provided comments which are listed in Table 5.

**Table 5: Additional Comments Related to Package Delivery Services Integrated with Public Transportation**

Text Response
Wyoming is so sparsely populated and has very little public transportation that I don't see how it could work here.
Our local postal system could use the help for delivery of last mile!
We have nothing here except post office, FedEx and UPS.
Lack of public transportation in our state would pose problems.
Local transit is NOT available



The current last mile agreement that UPS has with USPS sucks. In Jackson we have different addresses for mail (at P.O. Box) and parcels at the home so we already get most of our packages returned because UPS is leaving them at the post office to deliver last mile and the packages have a home address and not the P.O. Box so USPS returns them as undeliverable. This must cost millions in shipping fees in Jackson as all my friends have the same problem and it must cost millions in wasted gas and road usage. The solution is to fix this problem by not allowing UPS to drop packages at post offices thus everyone will get their package on the first try, not the usual third.

For our business I do not believe this would be a good option. We are a food business.

Having never thought about it, I really don't know how accurate my answers are to help you. I do know that utilities are a problem because of how sparsely populated we are. I wonder if this will actually be feasible, financially. We are pretty satisfied, overall, with our delivery system now, except for the shipping costs. That is why we use Amazon Prime.

Jackson has a terrible package delivery. The agreement that UPS has with the postal system, which allows them to drop packages off at post office is terrible. UPS stored because it was easier. The post office returns the package to sender because it has a physical address on it instead of a P.O. Box. It must cost Amazon thousands of dollars in our town alone with the number of packages that the post office returns. The first step to cost saving is to cancel the agreement with the postal system and have UPS do its job.

Not enough local transit in place.

There is no public transit of any kind in Dubois, WY and many parts of the rural west.

I think it's a silly idea. It would be a last resort, particularly as most areas in Wyoming do not have public transportation to begin with. This is an urban "solution" for a rural state. Public Transportation is designed to move people, not packages. Vehicle maintenance schedules will also have a deleterious impact on performance. Lack of tracking is a significant concern. Uber's nearly complete lack of vetting drivers is a security concern. Package handling, dangerous/illegal product transportation. It's not amateur hour, folks. I can see this becoming a Homeland Security NIGHTMARE.

Difficult to start-up.

## Summary

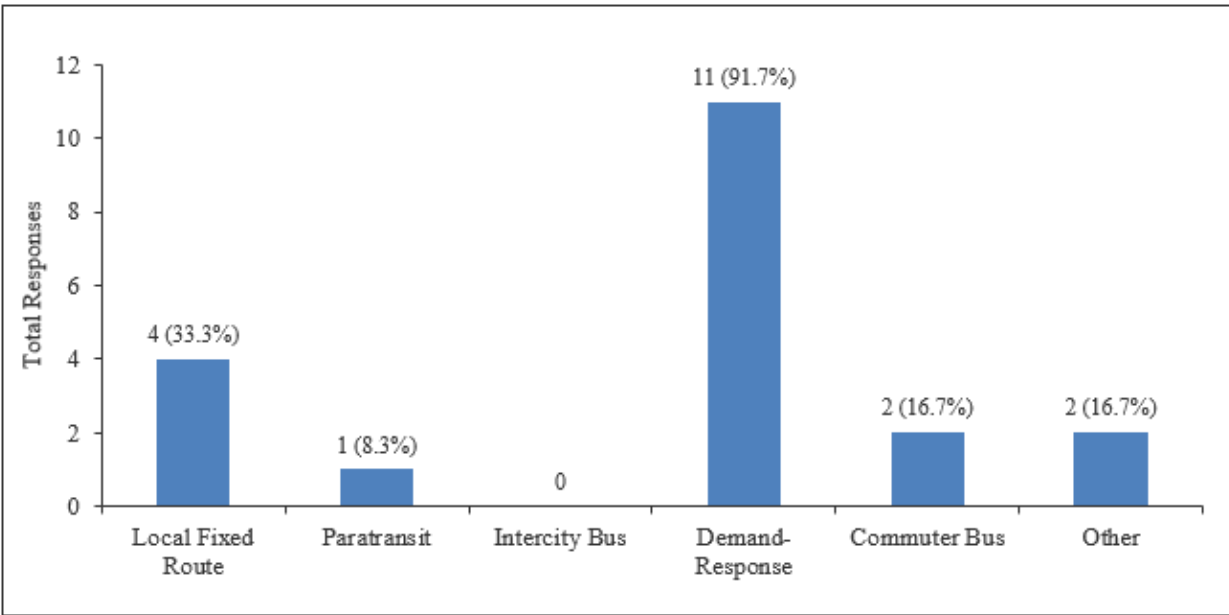
The purpose of this survey was to gather information and insight from commercial entities in Wyoming to see if they are familiar with last mile commercial package delivery services being integrated into public transportation services and to gain insight on whether they would use a potential service. A total of 31 Wyoming business owners responded to the survey. A large portion of the respondents (20 respondents or 64.5 percent) would not consider using their local

public transportation system for last mile package delivery. Common concerns included limited delivery area coverage, insufficient package tracking, and inconsistent package delivery. While a majority of the respondents stated that they would not use local public transportation systems for package delivery, they do believe that this type of service would provide cost savings, larger next day delivery, same day service option; and improve customer service.

## **SURVEY OF PUBLIC TRANSPORTATION AGENCIES**

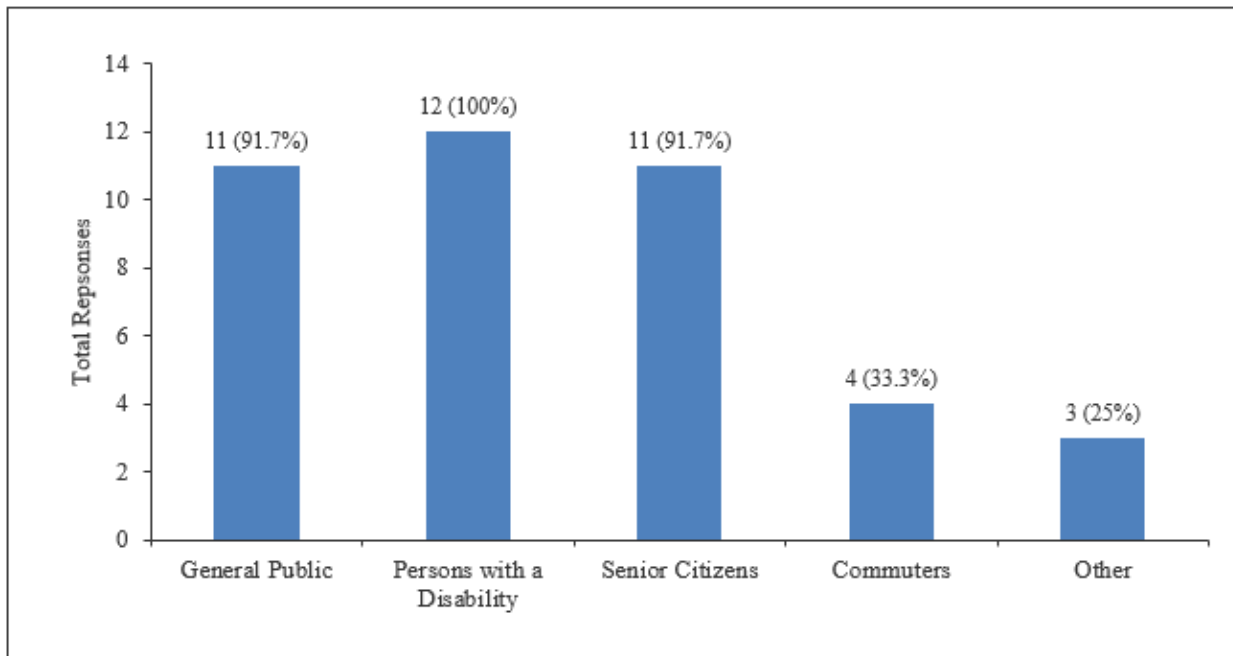
In rural and small urban areas, transit managers/administrators are coordinators and controllers (responsible for planning, development, and budgeting), information processors (internal and external spokesperson of an organization), and strategists (allocating resources, and solving day to day affairs). To elicit their opinion for last mile package deliveries, a survey was created and sent to Transit Managers (or similarly titled people) within transit agencies. An introductory email, which included a link to the online survey (Survey Monkey), was sent to fifty-two public transit managers of Wyoming. The email noted that participation in the survey was voluntary, and that the respondents had the choice to skip any question they did not want to answer. Of the 52 Transit Managers, 12 responded for a 23 percent response rate. The full transit manager survey is provided in Appendix 2: Transit Manager Survey.

The survey began with a brief introduction, then asked what types of services the transit agency provided, see Figure 10. Demand-response transit was the most common response with 11 respondents (91.7 percent) providing this type of service. Local fixed-route service was the second most common response with 4 respondents (33.3 percent) providing this type of service. Two respondents (16.7 percent) answered “Other,” which included providing weekly medical trips and “catch all” service for all types of public transportation for a large rural county. None of the respondents provided intercity bus services, which is typically the type of service that provides package delivery.



**Figure 10: Which of the following services does your transit agency currently provide? (check all that apply)**

The survey then asked respondents to list the population groups that their transit agency served. As shown in Figure 11 twelve respondents (100 percent) served persons with disabilities. Eleven respondents (91.7 percent) provided services for the general public and senior citizens. Three respondents (25 percent) answered “Other.”



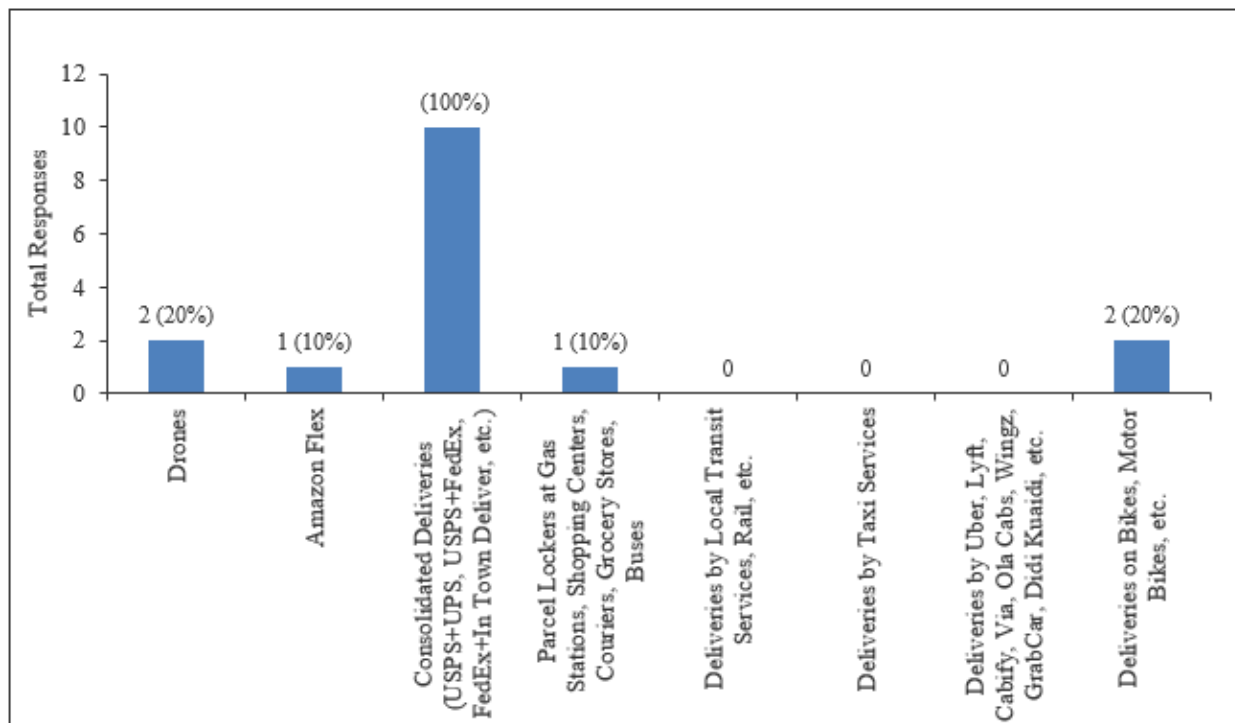
**Figure 11: Please indicate the population groups your transit agency serves. (check all that apply)**

Three respondents (25 percent) answered “Other.” Details of the “Other” responses are provided in Table 6.

**Table 6: Other population groups served by a transit system.**

Other Population Groups Served by Transit Agency	
Severe medical needs, education centers, casinos, just about anything you can think of. We try to help anyone who needs transportation services.	
Tourists	
Transportation disadvantaged	

The survey then asked if the respondents were familiar with any innovative methods for last mile commercial package delivery. As shown in Figure 12 all of respondents that answered this question (two respondents skipped this question) were familiar with consolidated delivery including the USPS and UPS, or USPS and FedEx. Only two respondents (20 percent) were familiar with using drones or bicycles for last mile commercial package delivery. One respondent (10 percent) was familiar with using Amazon Flex and parcel lockers for last mile commercial package delivery.



**Figure 12: Which of the following innovative ways of last mile commercial package delivery are you familiar with? (check all that apply)**

The next question asked if their transit agency was currently delivering commercial packages in conjunction with their passenger services, none of the respondents were currently offering this service. Respondents were then asked if they were willing to provide commercial package delivery services to their community. Two respondents skipped this question. Five respondents (50 percent) were willing to provide this service.

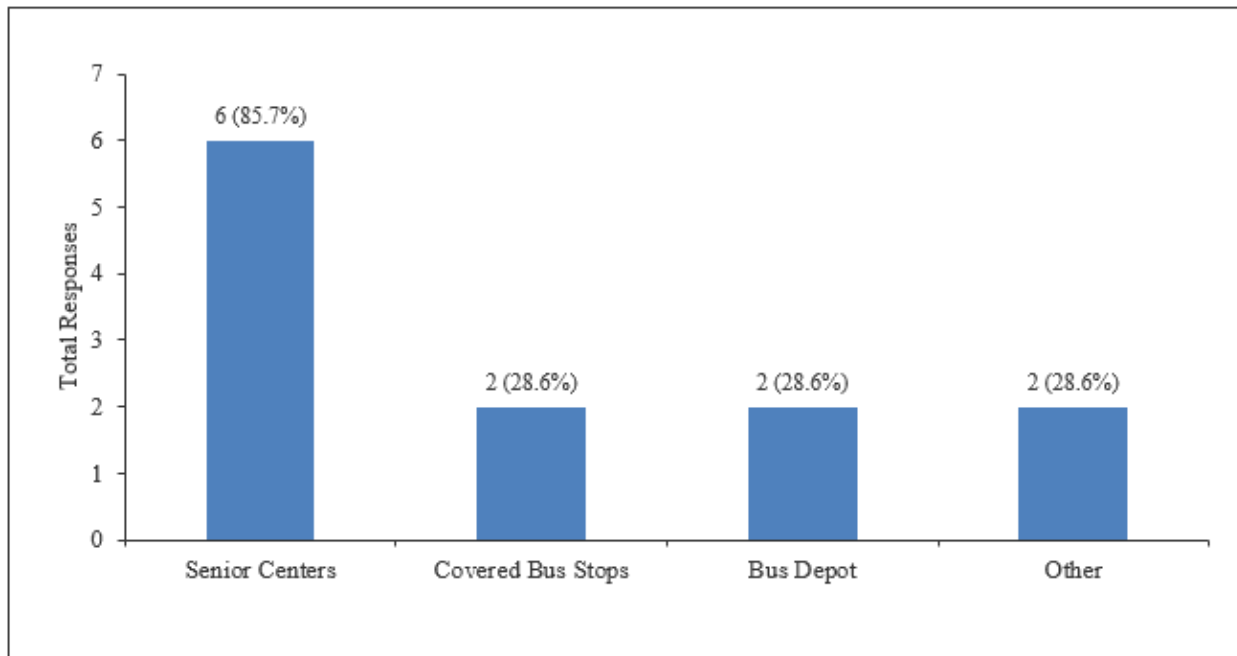
Respondents were asked what percentage of seats were typically empty on their buses during in-town trips and out-of-town trips. Five respondents skipped this question. The answers to this question are provided in Table 7.

**Table 7: What percentage of seats are typically empty in your buses on in-town trips and out-of-town trips?**

Percent of Empty Seats	
In-Town	Out-of-Town
25%	N/A
20%	N/A
Varies greatly depending on time of day, season, and weather. 40% maybe.	Varies greatly, can be packed. 25%
50%	25%
50%	N/A
20%	40%
75%	25%

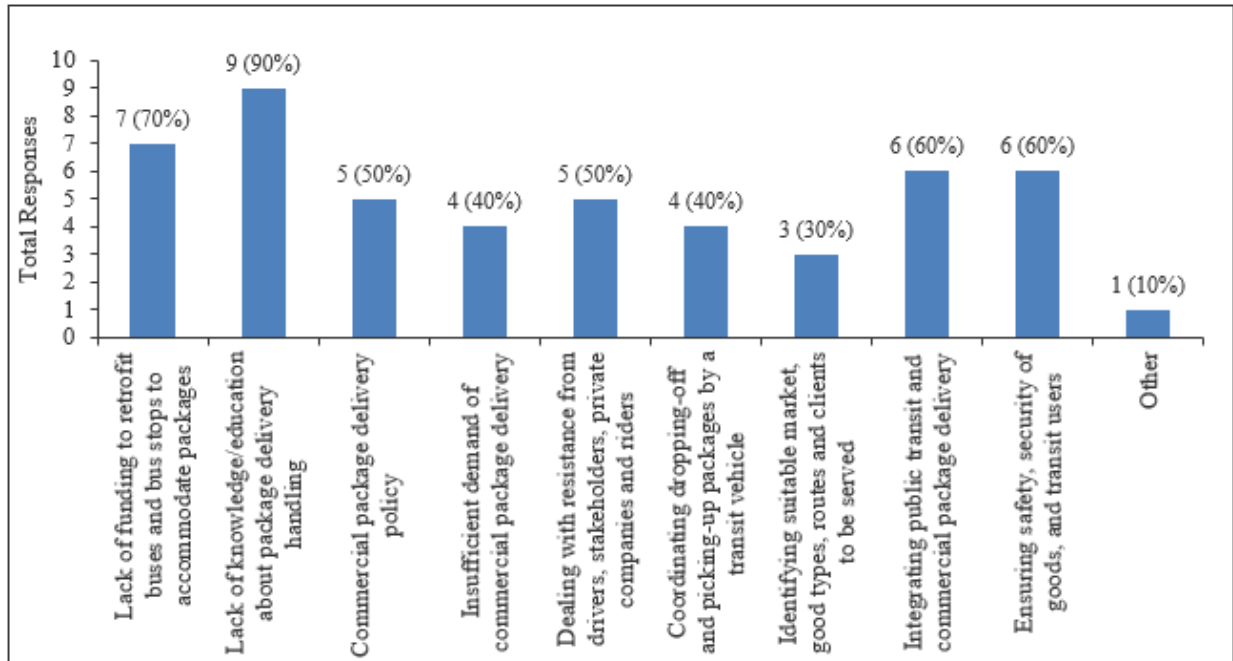
Respondents were asked if they were willing to remove a few seats on their buses to turn them into cargo space. Only two respondents (22.2 percent) were willing to remove seats to turn them into cargo space. Three respondents skipped this question. Respondents were asked if they were willing to install mobile lockboxes on their buses. Only two respondents (22.2 percent) were willing to install mobile lockboxes on their buses. Three respondents skipped this question.

Respondents were then asked if they were willing to install lockboxes to facilitate last mile package delivery at specific locations, such as a bus stop or senior center. As summarized in Figure 13: Are you willing to install lockboxes to facilitate last mile package delivery at the following locations? (check all that apply), six respondents (85.7 percent) were willing to install a lockbox at a senior center. Two respondents (28.6 percent) were willing to install a lockbox at a covered bus stop, bus depot, or “other.” The two respondents that answered “Other” specified that they would need more information. Five respondents skipped this question.



**Figure 13: Are you willing to install lockboxes to facilitate last mile package delivery at the following locations? (check all that apply)**

The next question asked respondents what they believed would be the potential challenges in providing last mile package delivery service by rural transit providers. As shown in Figure 14, the most common response is that the lack of knowledge/education about package delivery handling will be a challenge to providing package delivery services. Seven respondents (70 percent) believe that the lack of funding to retrofit buses and bus stops to accommodate packages will be a challenge. Six respondents (60 percent) believe that integrating public transit and commercial package delivery, as well as ensuring the safety and security of passengers and packages, will be challenging. One respondent (10 percent) answered “Other,” stating that they were too busy with the demand for passenger services. Two respondents skipped this question.



**Figure 14: What are potential challenges in starting a last mile package delivery by rural transit services?**

The next question asked respondents to list any additional types of resources that a transit agency may need to make last mile package delivery a reality. Only four respondents (33.3 percent) answered this question. The text responses are provided in Table 8.

**Table 8: List any additional types of resources transit agencies will need to make last mile package delivery a reality.**

Text Response
Your list above is just the tip of the iceberg. I don't think this is a good idea.
Additional funding for another driver to cover increasing transit demand and this addition.
Our priority is providing transit services to seniors and the disabled. Another driver would be necessary. I would prefer a test of the service to determine if it would be profitable. Also why would FedEx or UPS surrender their routes?
Training, technology, and funding.

Next, respondents were asked if they believe that last mile commercial package delivery could be a good source of extra revenue for their transit agency. Four respondents skipped this

question, and the other four respondents (50 percent) believe that package delivery could be a good source of revenue.

Finally, the respondents were asked if they had any additional comments related to package delivery services integrated with public transportation. Four respondents (33.3 percent) provided comments which are listed in Table 9.

**Table 9: Additional comments related to package delivery services integrated with public transportation.**

Text Response
I am concerned that this service should be provided by a private packaging company, not a public human transportation company. These are very different. First and foremost, WRTA is a public transportation company according to our mission. It is difficult enough to manage what we do already have the expertise and resources to effectively run an operation like this would be extremely difficult and unlikely. WRTA would not even consider performing a last mile delivery company unless it was extremely profitable as we need to focus on our mission. In most cases, WRTA has a strict passenger pick up schedule we need to maintain and could not do deliveries with additional stops.
I would need more information on the service, as this area currently has a private business that does this I believe.
I guess my concern is just how much income can we expect to generate and what if we don't have a passenger fare going that way (out of town)? Would we be required to deliver the package right away anyway?

## Summary

The purpose of this survey was to gather information and insight from transit agencies to see if they are familiar with last mile commercial package delivery services integrating into public transportation services and whether they would be willing to provide this type of service. A total of 12 transit agencies responded to the survey. Of the 12 that responded, only 4 respondents (33.3 percent) believe that last mile commercial package delivery could be a good source of extra revenue for their transit agency, and 5 respondents (41.7 percent) were willing to consider providing this service. Overall, it is believed that providing commercial package delivery will have many challenges, including general lack of knowledge about package handling and a lack of funding to retrofit buses.



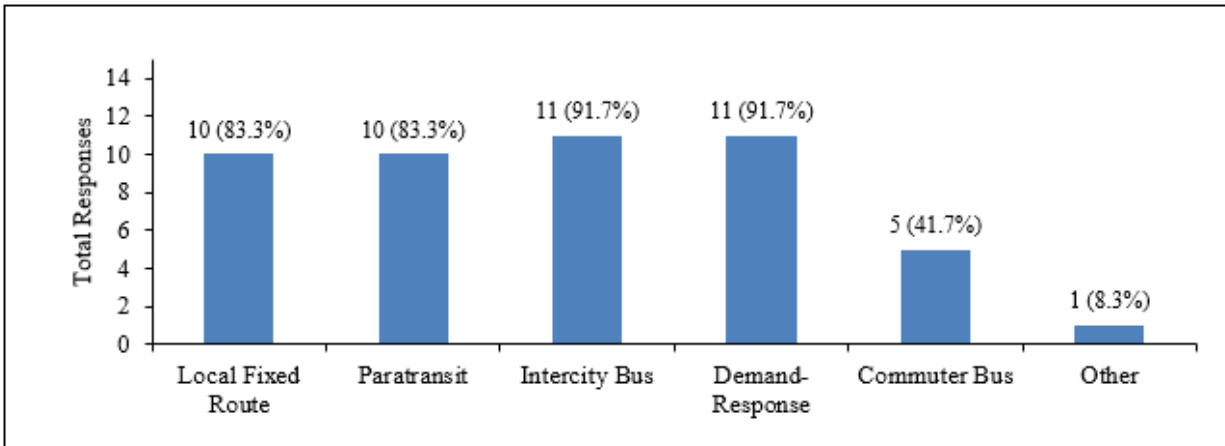
## **SURVEY OF STATE DOT OFFICIALS**

State DOTs receive funding from the FTA (FTA Section 5311 funds), and their officials administer/distribute this funding to local agencies and organizations for operating transit programs/systems in rural areas. They interpret and navigate through many policies, procedures and requirements of state and federal government in order to successfully operate rural transit programs. To record the opinion of state DOT officials regarding the possibility of last mile package deliveries, a survey was created and sent to Transit Program Managers (or similarly titled people) within each state Departments of Transportation (DOTs). The full survey sent to state DOT officials is provided in Appendix 3: State DOT Survey.

An introductory email, which included a link to the online survey (Survey Monkey), was sent to the Transit Program Managers. The email noted that participation in the survey was voluntary, and that the respondents had the choice to skip any question they did not want to answer. Of the 50 Transit Managers, 12 responded (24 percent response rate). The states represented include:

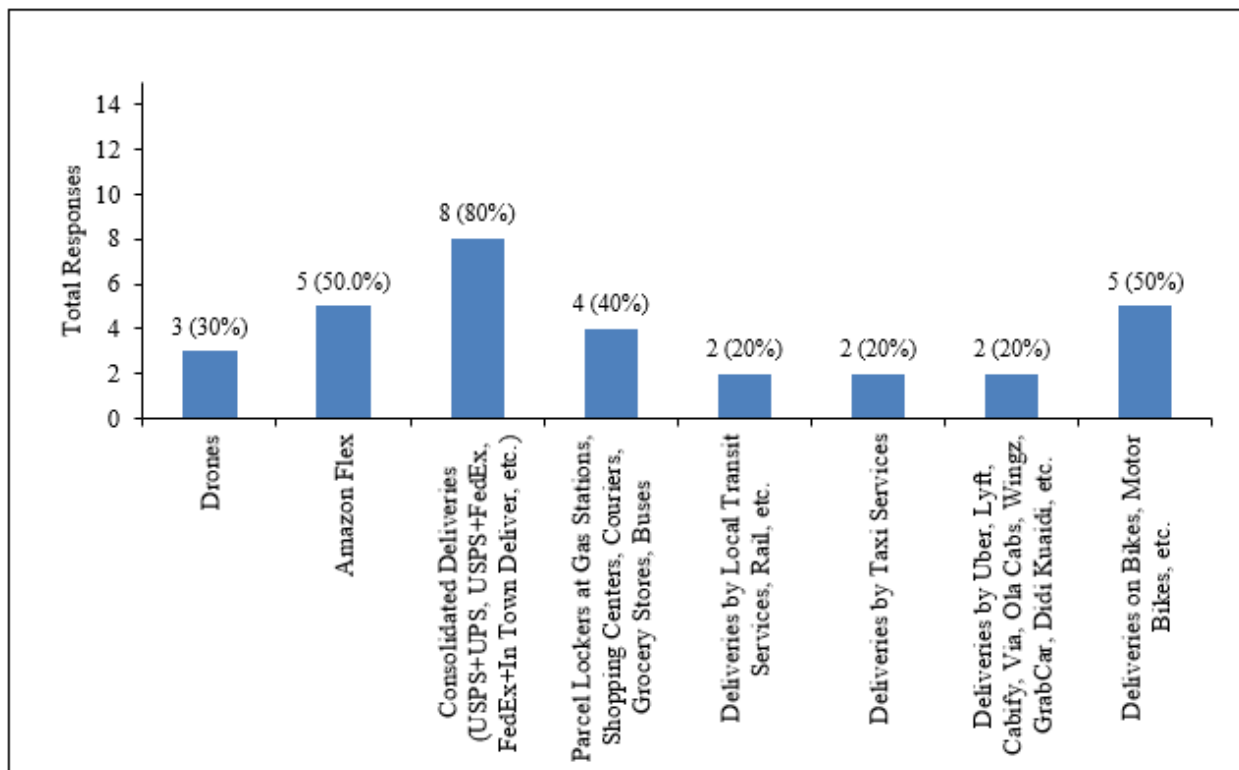
- Arizona
- Florida
- Indiana
- Nebraska
- North Central Regional Transit District (New Mexico)
- North Dakota
- Ohio
- Utah
- Washington
- Wyoming
- Unknown (2 respondents did not provide contact information)

The survey began with a brief introduction, then asked for contact information of the person completing the survey. The survey then asked which transportation services were currently available (funded and/or supported) by the state DOT. As shown in Figure 15 intercity bus and demand-response transit were the most common transportation services offered with 11 respondents (91.7 percent) offering these services. Local fixed route and paratransit were the second most common transportation services with 10 respondents (83.3 percent) offering these services. One respondent (8.3 percent) replied as “Other” and specified that they offered van pool.



**Figure 15: Which of the following public transportation services are available (funded and/or supported) by your State DOT?**

The survey then asked if the respondents were familiar with any innovative methods for last mile commercial package delivery. Figure 16 summarizes the responses and shows eight respondents (80 percent) were familiar with consolidated delivery including using USPS, UPS, or FedEx. Only two respondents (20 percent) were familiar with using local transit services for last mile commercial package delivery. Two respondents skipped this question.



**Figure 16: Which of the following innovative ways of last mile commercial package delivery are you familiar with?**

The next question asked if the respondents believed that rural public transportation systems should provide last mile package delivery along with intercity bus systems in their state. Seven respondents (58.3 percent) responded “yes.” A follow up question asked respondents if any of their state’s rural public transportation systems were currently delivering commercial packages along with passenger services. Only three respondents (25 percent) answered “yes”. Those that answered yes were asked to provide the name of these services. Table 10 provides the text responses.

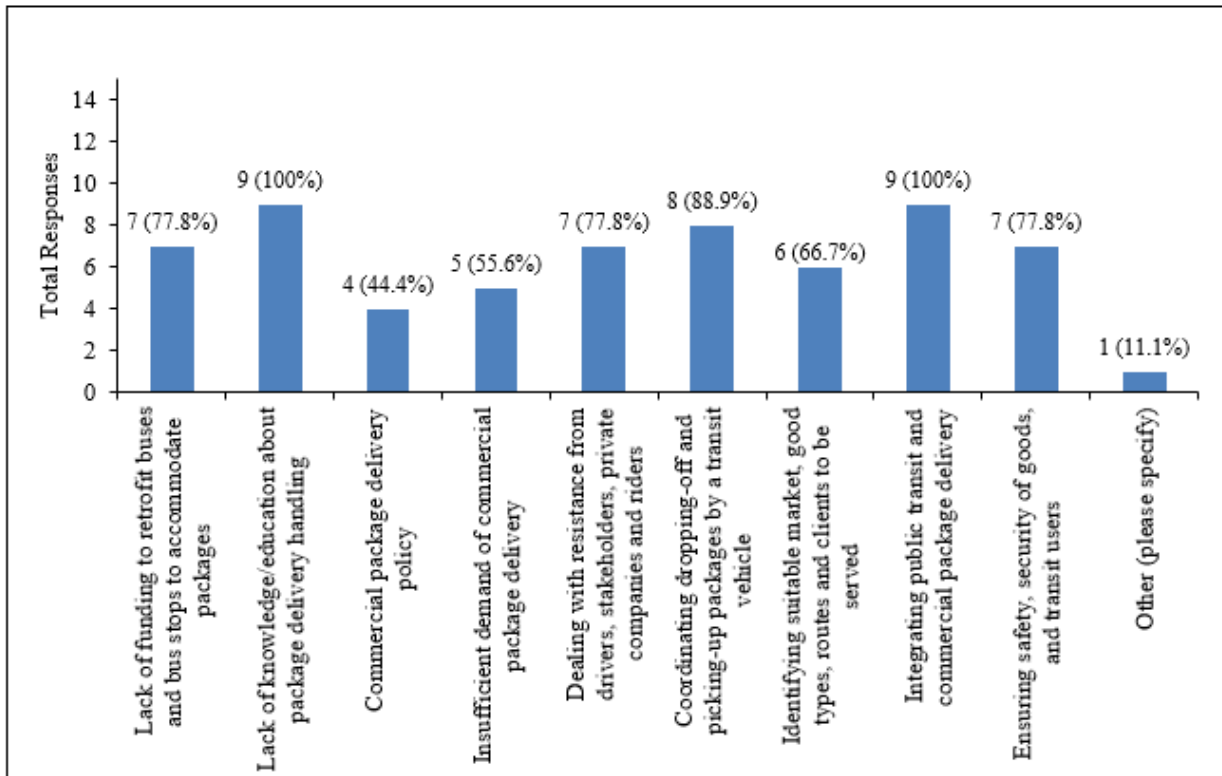
**Table 10: List of Service Providing Commercial Package Delivery**

Text Response
Navajo Transit
I believe that Manley Village Express a Tribal Transit Program in interior Alaska provides pack service, although they are no longer a state sub-recipient so I am not 100% sure.
Black Hills Stage Lines, AllTrans Inc., Jefferson Lines

The next question asked respondents if they believe that last mile package delivery could be a good source of revenue for rural transit systems. Six respondents (66.7 percent) answered “yes,” and three respondents skipped this question.

The next question asked if the respondent’s department of transportation had any commercial package delivery policies or guidance available for rural transportation systems. None responded that they had commercial package delivery policies in place or provided guidance for rural transit systems.

The next question asked respondents what they believed would be the potential challenges in providing last mile package delivery service by rural transit providers (Figure 17). With the exception of the three respondents who skipped this question, all respondents identified integrating public transit and commercial package delivery and lack of knowledge/education about package handling as challenges. Eight respondents (88.9 percent) believe that coordinating drop-off and pick-up of packages by transit will be difficult. One respondent (11.1 percent) answered “Other,” and went on to elaborate “ensuring that this is maintained as incidental use under current regulations” will be a challenge.



**Figure 17: What are potential challenges in starting a last mile package delivery by rural transit services?**

The next question asked respondents to list any additional types of resources that rural transportation systems will need to make last mile package delivery a reality. Only five respondents (41.7 percent) answered this question. Responses are provided in Table 11.

**Table 11: List any additional types of resources rural transportation systems will need to make last mile package delivery a reality.**

Text Response
Infrastructure and vehicle add-on needs storage and electronics.
All of the above, union buy-in, grantee buy-in.
Additional funding to retrofit buses, lockbox facility, training, and technology.
Lack of information, and guidance is needed.
Training and marketing

Next, the respondents were asked if their state had any unique or exceptional last mile package delivery projects or any rural transportation providers that had recently been completed or were currently underway. None of the respondents provided any project information.

Finally, the respondents were asked if they had any additional comments related to package delivery services integrated with public transportation. Three respondents (25 percent) provided comments which are listed in Table 12.

**Table 12: Additional comments related to package delivery services integrated with public transportation.**

Text Response
Transit driver should not leave the vehicle.
Requires more time and coordination with drivers already stressed with existing service. Will increase expenses and insurance. Will increase service delivery times for transit service.
Might be a good way to increase revenue, but there is very little information out there on this.

## Summary

The purpose of this survey was to gather information and insight from state DOTs to see if they are familiar with last mile commercial package delivery services integrating into public transportation services. A total of 12 states responded to the survey. Of the 12 that responded, 6 (50 percent) believe that last mile commercial package delivery could be a good source of extra revenue for rural public transportation systems, and 7 (58.3 percent) believe that rural public transportation systems should be providing this service. However, it is believed that providing commercial package delivery will present many challenges including coordinating pick-ups and drop-offs, integrating these services, and a general lack of knowledge about package handling.

## REGULATORY AND PACKAGE DELIVERY ALLOWANCE POLICIES ANALYSIS

All FTA and other federal grant recipients have a responsibility to comply with statutory and regulatory requirements associated with the management of federally assisted grants. To ensure that grantees follow federal statutory and administrative requirements when managing their programs, FTA provides guidance, often in the form of circulars. FTA Circular 9040.1G, published on October 24, 2014, is the latest of guidance that includes the provision of the Moving Ahead for Progress in the 21st Century Act (MAP-21) on the administration and preparation of the transit assistance program for guidance on the administration and preparation of grant applications for the Formula Grants for Rural Area Program known as Section 5311 fund or 5311 money. The purpose of Section 5311 assistance is the provision of public transportation services and FTA encourages maximum feasible coordination with other rural transportation services. FTA policy and the Federal Interagency Coordinating Council on Access and Mobility (CCAM) policy on vehicle resource sharing allow vehicles to be used for purposes other than that specified in the original award on an incidental basis. The circular guides that:

*“A rural transit provider may use a Section 5311 vehicle for nonpassenger transportation on an occasional or regular basis, such as package delivery, if this incidental use does not result in a reduction of service quality or availability of public transportation service. The incidental use policy does not preclude the recipient’s use of Section 5311 assistance to support the transportation of passengers by a private provider that is not primarily engaged in passenger transportation. For example, a recipient may use Section 5311 funds to support a contract mail carrier that incidentally provides intercity passenger transportation, if the carrier has appropriate regulatory authority to carry passengers. Section 5311 funds may only be used to subsidize the passenger transportation services of the mail carrier.”*

A rural transit provider may design its Section 5311 funded services to maximize use by members of the general public who are transportation-disadvantaged. *Transportation disadvantaged people include seniors, people with disabilities, and low-income individuals. Transit service providers receiving assistance under Section 5310 or Section 5311 may coordinate and assist in providing meal delivery service for homebound people on a regular basis, if the meal delivery services do not conflict with the provision of transit services or result in a reduction of service to transit passengers.* FTA expects that the nutrition program will pay the operating costs attributable to meal delivery. Section 5311 capital assistance may not be used to purchase vehicles used solely for meal delivery or to purchase specialized equipment such as racks or heating or refrigeration units related to meal delivery (FTA C 9040.1G 2014).”

...

Another FTA fund being utilized for rural areas is Section 5310 program. This program is to improve mobility for seniors and individuals with disabilities throughout the country by removing barriers to transportation services and expanding the transportation mobility options available. FTA Circular 9070.1G published on July 7, 2017 guides that:

*“Meal Delivery for Homebound Individuals. Public transportation service providers that receive assistance under Section 5310 or Section 5311(c) funds may coordinate and assist in regularly providing meal delivery service for homebound individuals, as long as the delivery*

*service does not conflict with providing public transportation service or reduce service to public transportation passengers (9070.1g 2014).*

Other than these policy statements, no specific package delivery policies or guidance is available for rural transit systems. These policy statements give flexibility to rural transit systems to potentially use their resources for last mile package delivery. Long run intercity bus systems, such as Greyhound and its network carriers, and other short run intercity bus systems and rural area buses that deliver packages use the package express tariff and sales manual created by Revenue Development Department of Greyhound Lines, Inc. The manual is focused on four aspects: (1) package, marking, labeling, and condition of acceptance; (2) shipping tariffs and refund policies; (3) liabilities; and (4) package safety regulations. Transit agencies in the United States receive federal grants to run their operations and capitals. The use of the federal fund means the transit systems must comply with the United States Department of Transportation (USDOT) regulations and policies defined in legislative codes. Many of the contents of the package delivery policies are derived from the transportation security administration and other federal government policies pertained to transportation of the goods and services.

In March 2017, Texas A&M Transportation Institute published, *“Guidebook: Using Public Transportation to Facilitate Last Mile Package Delivery.”* This guidebook states two important regulatory aspects: (1) Driver and Operator Requirements; and (2) Passenger and Cargo Carrier Regulations. Driver and Operator Requirements is focused on obtaining a commercial driver license and maintain a designated minimum level of insurance. Passenger and Cargo Carrier Regulations is focused on obtaining a broker and a freight forwarder license from the USDOT’s Federal Motor Carrier Safety Administration (Edrington, Elgart, et al. 2017). WYDOT’s Insurance Requirements Document States,

*“(a) Liability Insurance (Form E) motor carrier bodily injury and property damage liability, with a combined single limit (CSL) of \$500,000. (b) Cargo Insurance (Form H) Common security required to compensate shippers or consignees for loss of or damage to property coming into the possession of common and contract motor carriers in connection with their transportation service. All common and contract motor carriers require \$10,000 of cargo insurance, except those carriers transporting commodities that do not require cargo insurance (WYDOT 2017).”*

A majority of rural transit agencies that deliver packages have some kind of collaboration with an intercity bus system (primarily those in the Greyhound network), thus, all follow the operating and regulatory policies of Greyhound. This should continue to be followed by Wyoming transit systems that are interested in delivering packages as a starting point.

### **Summary:**

FTA grant recipients of rural areas are allowed to initiate a last mile package delivery as a part of the extension of the current transit services. However, to make a package delivery robust, more policies and procedure should be created at federal, state, and local levels.

## QUANTIFICATION OF COMMERCIAL PACKAGE DELIVERY DEMANDS AND REVENUE

In order to quantify the benefits of commercial package delivery through transit systems, the researchers first used US Census data and USPS data to estimate the number of packages delivered to a zip code based on the average number of packages delivered to a household.

The US Census provides information on the total number of households per zip code through their *2011-2015 American Community Survey*. It is important to note that the US Census uses zip code tabulation areas (ZCTAs) instead of zip codes. ZCTAs are more generalized versions of a zip code boundary. According to the USPS, the average household receives an average of 0.65 packages per week (United States Postal Service 2016). Using this information, the researchers determined the average number of packages delivered to a zip code each week. The researchers summarized this data by county.

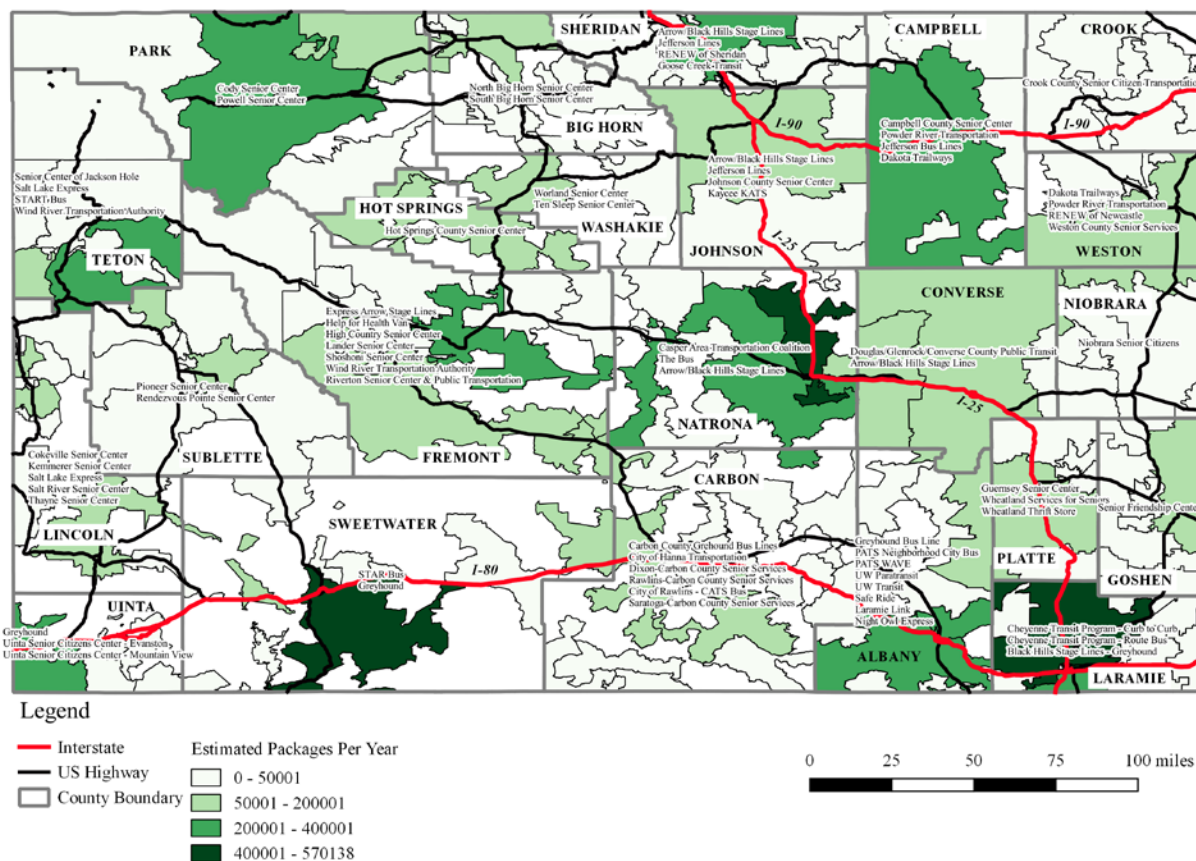
Formula to Estimate Number of Packages:

$$\text{Total Packages Per Zip Code Per Week} = \text{Total Households Per Zip Code} \times 0.65$$

$$\text{Total Packages Per Zip Code Per Year} = \text{Total Packages Per Zip Code Per Week} \times 52$$

Figure 18 shows a map of these package delivery estimates with the associated transit agencies for each county and major roadways. Laramie and Natrona counties had the largest estimated number of package deliveries per year, each about 1.1 million. Both of these counties are along the I-25 corridor. These counties are both served by Black Hills Stage Lines, an intercity bus service provider. Laramie County is also served by Greyhound on the I-80 Corridor.





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**Figure 18: Estimated Packages Per Year (Source: Western Transportation Institute)**

Using this information, the researchers are able to estimate the potential revenue from package delivery for each county. To estimate the potential revenue, the research team assume that rural transit agencies will offer only residential deliveries in rural areas. United States Postal Service's Destination Delivery Unit (DDU) 2017 rate is \$ 2.74 (for 1 pound or less weight) for private carriers that uses USPS for last mile package delivery (USPS 2017). USPS rates for DDU increase \$ 0.05 per pound up to 5 pounds. The researchers used the lowest rate of \$2.74 per package and assume that transit agencies could handle 20 percent of the total packages delivered to each county for estimation purposes (see Table 13).

Formula to Estimate Potential Revenue

$$\text{Potential Revenue} = (\text{Total Packages Per County Per Year} \times 20\%) \times \$2.74$$

Potential revenue ranges from \$24,005 (in Niobrara county) to \$764,456 (in Laramie county). The average is \$215,373 per county in potential revenue from package delivery via public transit.

**Table 13: Potential Revenue of Package Delivery**

<b>County</b>	<b>Total Housing Units (US Census Bureau n.d.)</b>	<b>Average Packages Per County Per Year</b>	<b>Potential Revenue in \$ (if transit systems deliver 20% of the total package.)</b>
Albany	18,475	624,455.0	\$ 342,201.34
Big Horn	5,188	175,354.4	\$ 96,094.21
Campbell	19,512	659,505.6	\$ 361,409.07
Carbon	8,407	284,156.6	\$ 155,717.82
Converse	6,497	219,598.6	\$ 120,340.03
Crook	3,516	118,840.8	\$ 65,124.76
Fremont	17,710	598,598.0	\$ 328,031.70
Goshen	5,911	199,791.8	\$ 109,485.91
Hot Springs	2,545	86,021.0	\$ 47,139.51
Johnson	4,435	149,903.0	\$ 82,146.84
Laramie	41,272	1,394,993.6	\$ 764,456.49
Lincoln	9,084	307,039.2	\$ 168,257.48
Natrona	35,333	1,194,255.4	654,451.96
Niobrara	1,296	43,804.8	\$ 24,005.03
Park	14,014	473,673.2	\$ 259,572.91
Platte	4,926	166,498.8	\$ 91,241.34
Sheridan	14,404	486,855.2	\$ 266,796.65
Sublette	5,843	197,493.4	\$ 108,226.38
Sweetwater	19,019	642,842.2	\$ 352,277.53
Teton	13,041	440,785.8	\$ 241,550.62
Uinta	9,547	322,688.6	\$ 176,833.35
Washakie	3,860	130,468.0	\$ 71,496.46
Weston	3,602	121,747.6	\$ 66,717.68
<b>Total</b>	<b>267,437</b>	<b>9,039,370.6</b>	<b>\$ 4,953,575.09</b>

Appendix 4: Potential Revenue Per Zip Code provides a break down by zip code and a list of beneficiary transit systems.

## CONCLUSIONS AND RECOMMENDATIONS

Last mile package delivery has seen a great deal of attention and innovation in e-commerce, but it can be a daunting task. The e-commerce market is not only large, but highly dynamic and price sensitive. Consumers are looking for faster and cheaper home delivery options. E-commerce giants such as Amazon, JD.com, Alibaba, Rakuten, and various start-up companies such as Fetchr, what3words Ltd, and OkHi Ltd, have identified that last mile package delivery is the key to staying competitive in the market. These companies are making huge investments in improving and inventing new ways of last mile package deliveries including the participation of autonomous and drone vehicles and non-traditional participants such as transportation network companies (TNCs) (Gett, Lyft, Juno, Cabify, Uber, goCatch, Via, Ola Cabs, etc) and rural transit systems.

Although last mile package deliveries through TNCs and rural transit systems are small, they are becoming a reality and will remain so for the next 10 to 20 years until the autonomous vehicles and drones start to play a role. However, the growth of TNCs, rural transit systems, and autonomous vehicles are fundamentally depending on three facts: (1) Opportunity Recognition: *Is this a real opportunity for transit organizations?* (2) Regulations and Policies: *Can a transit deliver the packages or is it allowed to do so?*; and (3) Public and Governmental Acceptance: *A transit system is for public good and how it can jump into a private business?* Although the consumers, stakeholders, and private players are very skeptical about these factors, they have begun to accept innovative methods for package delivery because they want their product shipped quickly and in a cost-effective manner. The same has been recognized by Wyoming's commercial entities, transit managers, and other state DOTs. They believe that last mile commercial package delivery could be a good source of extra revenue for their transit agency and were willing to consider providing the last mile package deliveries. Quantification of commercial package delivery demand and revenue indicates that the minimum potential revenue could be approximately \$24,005 for each country. Transit systems in Laramie County could see the potential revenue up to \$764,456 (Appendix 4).

One fact is certain, there is a potential for rural transit agencies to earn extra revenue through package delivery. In rural areas, many of the transit systems are being operated by senior citizen centers. FTA's Section 5311 grant programs allow the funded vehicles/equipment to be used for providing transit to employment, medical care, education, shopping, socialization, etc. Incidental use of vehicles as cargo carriers (i.e. meals on wheels), and work vehicles (i.e. carrying crews and equipment from site to site and/or standing idle between work sites) is permitted as long as it does not interfere with the primary use of the vehicle(s). Package delivery could be an added service by senior centers if they choose to participate. By considering all aspects and facts stated in this study, the last mile package delivery is a feasible option for generating revenue to support a rural transit system.

In the next 10 years, many new innovations such as drones and autonomous vehicles will take place for last mile package deliveries. E-commerce giants like Amazon and TNCs such as Uber and Lyft will be looking for secure lock box facilities and storage spaces to dedicated terraces or ground as landing platforms for drones. The parent organizations can rent out or host package delivery stations and landing spaces at their underutilized space or they can actively start package deliveries or they can prefer both the options.

The survey results and demand/revenue estimates suggest that the public transit agencies of Wyoming have capacity to add a package delivery service, a market for the service and a facility to house the service. The following are specific recommendations that if implemented, would help to initiate the package deliveries in rural areas. As noted herein, however, there needs to be a process of consultation with the communities, local transit providers, and ICB providers before new package services are offered. WYDOT may educate transit agencies on how they could offer package deliveries and facilitate a dialogue with ICBs, businesses, and industry leaders. The recommendations include the following:

### **Build a Relationship with riders, businesses, and stakeholders**

Transit agencies should explain to their riders, local businesses, and stakeholders what it takes to provide public transportation services in the communities and what it costs to provide a ride. Moreover, they should explain how the newly added package delivery service would help their communities. Package delivery services could be shown as an economic development opportunity, and not as a concern for continued transit services.

### **Access Potential Market**

A small business delivery service might courier blueprints from an architect to contractors or developers. Medical transport carriers take bloodwork, test items, biological samples, prescriptions/medications, or medical supplies from collection facilities to labs or hospitals. Moreover, very small shops, artisans with small quantity shipping needs, agriculture labs, farms, community colleges, and schools are all potential organizations looking for package delivery options. A dialogue with these businesses will help to determine a level of package delivery services, desirable shipping rates, shipping requirements, and package sizes.

### **Develop Level of Package Delivery Services**

Transit agencies should decide what level of the package delivery services they want to provide:

- Daily/ Twice a week or other levels of service
- Deliver before or after transit services
- Geographic boundaries: providing services in between nearest city, Greyhound stops, or selected business locations and their headquarters

### **Develop Integration of Passenger and Package Delivery Services**

In the survey of transit agencies, many agencies responded that typically 25-40 percent of their seats are vacant all the time. Some agencies were willing to convert these seats into cargo space. This indicates that concurrent passenger and package delivery trips could be integrated. Transit services should consider the time requirement for package loading and unloading and delivery to locations along their routes and adjust their time schedules. This should not hamper the transit performance and rider experience. Moreover, transit agencies should look at dedicated and secure cargo space that can be created by removing some of vehicle's back seats. If transit

agencies are going to purchase a new vehicle, they should think about a dedicated cargo space where packages and passenger luggage can be stored securely.

### **Collaborate with Intercity Bus Services and Other Package Delivery Companies**

Intercity Bus Systems such as Greyhound, Jefferson Line, Salt Lake City Express, and courier companies like UPS, DHL, and FedEx, have been delivering packages for decades, and have the policies, operating procedures, equipment, packaging material, and technologies in place to be successful. Amazon is broadening its shipping network. A collaboration with these private players could help local transit agencies bring all the necessary equipment, technologies and procedures to initiate package delivery services in short time. In addition, regulatory and legal aspects including insurance will be taken care of. There is no requirement for insurance for a non-CDL delivery business other than the state-required liability insurance on the vehicle. With that said, it is wise to protect transit agencies with commercial liability insurance that covers the transit agencies from liability and protects the cargo they transport. Not only does this protect the transit agencies from a lawsuit, it also gives clients confidence that the transit agencies' drivers are responsible package handlers who take all precautions to protect their cargo. The collaboration could also help to decide a legal structure of the package delivery service and to acquire new licenses such as freight forwarder license and handling lab samples, or industrial safety licenses.

### **Begin Building a Package Delivery Infrastructure**

Initially, the packages can be handled from the transit office or bus storage facilities. A lock box facility, as envisioned by Amazon, can be installed at the dining areas of senior citizen centers, or at public spaces. Once the package delivery service grows, the parent organization(s) should consider building a UPS or FedEx type of package delivery infrastructure. A typical UPS or FedEx store has 800 to 1,800 square feet of storage and office area and a rear-door delivery and pickup. If a drone becomes a reality in rural areas, the transit agencies could collaborate with private companies to host drone landing services at their physical locations.

This report provides an overview of last mile package delivery and a feasibility assessment of last mile package delivery as a revenue generation tool for rural public transportation systems in Wyoming. It is intended to assist transit managers with navigating the e-commerce business, its future, its issues, shipping industry changes, policies, procedures, and requirements of state and federal government related to package deliveries through transit systems. WYDOT is responsible for the administration of state and federal transit programs and provides funding and technical assistance, as well as many other services and program oversight functions, for promoting and supporting public transportation throughout Wyoming. A strong and continuing support of WYDOT to transit services to add last mile package delivery will benefit transit agencies, their parent organizations, local communities, businesses, organizations, and e-commerce and shipping industries. Rapidly changing technologies and flexibility in package delivery regulations are the key to developing last mile package delivery as a potential and steady source for funding for small urban and rural transit systems in Wyoming.

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## APPENDICES

### APPENDIX 1: COMMERCIAL ENTITY SURVEY

The Commercial Package delivery system is under transformation. In August 2015, Amazon (largest online retailer) announced that it was creating its own package delivery system through its invented moving lockbox facility “Mobile Pickup Locations.” Instead of delivering products to customers’ residence and office addresses, customers can opt for a mobile pickup location delivery. Amazon is exploring this and other solutions such as Amazon Flex, a program with Uber to curb rising shipping costs and to improve last mile delivery services in rural areas, and to develop its own full-blown delivery network. These initiatives create opportunities for rural transit services to diversify their funding sources and for small town businesses to cut their shipping costs. It is likely that Amazon and other delivery companies may turn to the urban and rural transit industry to partner in last mile package delivery. By keeping this development in mind, the Western Transportation Institute (WTI) at Montana State University is conducting this survey as part of a Wyoming Department of Transportation (WYDOT) sponsored project to assess last mile commercial package delivery as a revenue generation tool for rural public transportation systems in Wyoming.

WTI would like to solicit your opinion in regard to the possibility of using local transit systems for last mile package delivery (and pick up). While participation in this survey is completely voluntary, we hope that you will share your knowledge and opinions with us. Please contact me or WYDOT if you have any questions about the survey or the project. Thank you for your time and participation.

Mr. Talbot J. Hauffe Transit Coordinator Office of Local Government Coordination Wyoming Department of Transportation 5300 Bishop Blvd. Cheyenne, Wyoming 82009 307-777-4384 <a href="mailto:talbot.hauffe@wyo.gov">talbot.hauffe@wyo.gov</a>	Mr. Jaydeep Chaudhari, AICP Western Transportation Institute (WTI) Montana State University PO Box 174250 Bozeman, MT 59717-4250, USA 334-332-5706 <a href="mailto:jaydeep@montana.edu">jaydeep@montana.edu</a> <a href="http://www.westerntransportationinstitute.org">www.westerntransportationinstitute.org</a>
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**Note:** Please use the following definitions to complete this survey.

**Last Mile Package Delivery:** The last leg of a package's trip before it arrives on a customer's doorstep.



**Mobile Pickup Locations:** A lockbox installed at a fixed location such as a bus stop, railway station, or airport, or at a mobile location such as a bus or train. Instead of delivering products to a customers' residence or office address, a customer can opt for a mobile pickup location delivery.

**Local Transit Service:** Provides basic mobility services within a local area (town/county) and travels limited distances (10-20 miles from main town).

**Commuter Service:** Provides mobility for employment or to access health care and other services from one city/town to another city/town. One-way distances typically range from 10 to 50 miles.

**Intercity Bus Service:** Regularly scheduled public service using an over-the-road bus (motor coach) that operates with limited stops between two or multiple urbanized areas, or that connects rural areas to urbanized areas. Intercity bus service may be also an interstate service.

**Name of your Organization:** \_\_\_\_\_

**Your Email Address:** \_\_\_\_\_

**Your Phone Number:** \_\_\_\_\_

### 1. What best describes your organization?

- ☐ Manufacturing (*9 respondents, 29.03%*)
- ☐ Retail or wholesale (*15 respondents, 48.39%*)
- ☐ Education, Government, or Non Profit (*1 respondent, 3.23%*)
- ☐ Other business which ships parcels (*0 respondents*)
- ☐ Carrier or other vender to shippers (*0 respondents*)
- ☐ Insurance or financial institutions (*0 respondents*)
- ☐ Healthcare organizations such hospitals, nursing home, elderly homes, etc. (*0 respondents*)
- ☐ Other: (*6 respondents, 19.35%*)

Text Responses
Self-employed professional artist
Promotional Products Distributor
freelance artist
Crafts

Custom designing, building, installing one of a kind woodwork and cabinetry
Graphic Design and Illustration Services

**2. Which of the following innovative ways of last mile commercial package delivery are you familiar with? (Check all that apply)**

- ☐ Drones (9 respondents, 31.03%)
- ☐ Amazon Flex (4 respondents, 13.79%)
- ☐ Consolidated deliveries (USPS+UPS, USPS+Fedex, Fedex+ In town Deliver, etc.) (27 respondents, 93.10%)
- ☐ Parcel Lockers at gas stations, shopping centers, couriers, grocery stores, buses (2 respondents, 6.90%)
- ☐ Deliveries by local transit services, rail, etc (4 respondents, 13.79%)
- ☐ Deliveries by taxi services (1 respondent, 3.45%)
- ☐ Deliveries by Uber, Lyft, Cabify, Via, Ola Cabs, Wingz, GrabCar, Didi Kuaidi, etc (1 respondent, 3.45%)
- ☐ Deliveries on bikes, motor bikes, etc. (2 respondents, 6.90%)
- ☐ Other: (1 respondent, 3.45%)

Text Responses
None of these

**3. On average, how many packages do you ship monthly (with all carriers)?**

- ☐ Under 100 (28 respondents, 90.32%)
- ☐ 101-500 (3 respondents, 9.68%)
- ☐ 501-1000 (0 respondents)
- ☐ 1001-2500 (0 respondents)
- ☐ 2501-5000 (0 respondents)
- ☐ 5001-10,000 (0 respondents)
- ☐ 10,001 and more (0 respondents)

**4. What size of packages do you ship? (Check all that apply)**

- ☐ Letter (2 respondents, 6.67%)
- ☐ Large Envelope (5 respondents, 16.67%)
- ☐ Packages (not more than 2' x 2') (22 respondents, 73.33%)
- ☐ Large Packages (not more than 50 linear inches) (12 respondents, 40.00%)
- ☐ Hospital/Lab Samples (0 respondents)

□ Other: (2 respondents, 6.67%)

Text Responses
prints, unframed art
Misc size packages not listed above

**5. Which top three parcel carriers do you use frequently?**

Carrier	Ranked 1	Ranked 2	Ranked 3
<b>UPS</b>	11 respondents, 39.29%	11 respondents, 39.29%	6 respondents, 21.43%
<b>USPS</b>	17 respondents, 58.62%	6 respondents, 20.69%	4 respondents, 13.79%
<b>Fedex</b>	1 respondent, 4.00%	11 respondents, 44.00%	13 respondents, 52.00%
<b>Regional Carriers or parcel consolidators</b>	0 respondents	0 respondents	1 respondent, 33.33%
<b>UPS Mail Innovations</b>	0 respondents	0 respondents	0 respondents
<b>Fedex Smartpost</b>	0 respondents	0 respondents	0 respondents
<b>DHL</b>	0 respondents	0 respondents	0 respondents
<b>Greyhound/Intercity Bus Services</b>	0 respondents	0 respondents	0 respondents
<b>Other</b>	1 respondent, 25.00%	0 respondents	0 respondents

**6. Please provide the general percentage of your parcel shipments that are delivered within your state or out of state?**

\_\_\_\_\_ % In State

\_\_\_\_\_ % Out of State

In-State Responses	Out of State Responses
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70%	30%
40%	60%
30%	70%
90%	10%
20%	80%
60%	40%
90%	10%
50%	50%
75%	25%
50%	50%
30%	70%
25%	75%
40%	60%
0%	100%
75%	25%
59%	49%
50%	50%
5%	95%
1%	99%
10%	90%
30%	70%
30%	70%
5%	95%
20%	80%
15%	85% including foreign countries
95%	5%
5%	95%
20%	80%

**7. Have you ever used Uber, Lyft, or Via for delivering food, packages, goods, grocery etc.?**

- ☐ Yes (*0 respondents*)
- ☐ No (*31 respondents, 100%*)

**8. Would you like to use your area's local public transportation system to provide last mile package delivery?**

- ☐ Yes (*10 respondents, 33.33%*)
- ☐ No (*20 respondents, 66.67%*)

**9. If you were to use the public transportation system, what percentage of your overall parcel business do you believe would go to the transit system?**

\_\_\_\_\_ %

**Text Responses**

20%
We have none, we live and work out of city
50%
Don't have
30%
50%
None. We don't have any.
0%
1%
N/A
Petit Secret Chocolate
2%
Vague question-depends on service area
Less than 1%
?
0%
50%
There is no local system.

**10. What benefits do you expect from your local public transportation systems if you use them as a package delivery service?**

- ☐ Cost savings (*17 respondents, 73.91%*)
- ☐ Larger next day delivery (*9 respondents, 39.13%*)
- ☐ Fewer surcharges (*5 respondents, 21.74%*)
- ☐ Better or no minimum charge (*2 respondents, 8.70%*)
- ☐ Same day options (*9 respondents, 39.13%*)
- ☐ Improved customer service (*9 respondents, 39.13%*)
- ☐ Specialized/Custom Solutions (*3 respondents, 13.04%*)
- ☐ Better billing terms (*1 respondent, 4.35%*)

- ☐ Other: (5 respondents, 21.74%)

Text Responses
None
We have no public transportation system
We do not have in Gillette (other than taxis)
N/A
Special Sizes, i.e. live edged lumber

**11. What could be a downside to using the local transportation system as a package delivery service? (Check all that apply):**

- ☐ Limited delivery area coverage (18 respondents, 66.67%)
- ☐ Driver/vehicle image not up to par (10 respondents, 37.04%)
- ☐ Lack of shipping automation (8 respondents, 29.63%)
- ☐ Tracking not on par (15 respondents, 55.56%)
- ☐ Inconsistent service/timely delivery (15 respondents, 55.56%)
- ☐ Loss of discount with UPS or Fedex (5 respondents, 18.52%)
- ☐ Reporting not on par (3 respondents, 11.11%)
- ☐ Customer service not on par (9 respondents, 33.33%)
- ☐ Other: (5 respondents, 18.52%)

Text Responses
None
Fear of damaged items
I am in a small, rural town.
Weather in rural Wyoming
Understanding their delivery limitations

**12. What could be challenges in starting a last mile package delivery by a local transit service? (Check all that apply):**

- ☐ Lack of funding to retrofit buses and bus stops to accommodate packages (13 respondents, 48.15%)
- ☐ Lack of knowledge/education about package delivery handling (20 respondents, 74.07%)
- ☐ Commercial package delivery policy (6 respondents, 22.22%)
- ☐ Insufficient demand of commercial package delivery (16 respondents, 59.26%)
- ☐ Dealing with resistance from drivers, stakeholders, private companies and riders (8 respondents, 29.63%)
- ☐ Coordinating dropping-off and picking-up packages by a transit vehicle (15 respondents, 55.56%)
- ☐ Identifying suitable market, good types, routes and clients to be served (10 respondents, 37.04%)

- ☐ Integrating public transit and commercial package delivery (*10 respondents, 37.04%*)
- ☐ Ensuring safety, security of goods, and transit users (*13 respondents, 48.15%*)
- ☐ Other: (*3 respondents, 11.11%*)

Text Responses
Lack of services
There is no public transit of any kind in Dubois, WY
Route times/schedules/length impacted negatively for riders

**13. Do you think that the last mile commercial package delivery could be a good source of extra revenue for a local transit system?**

- ☐ Yes (*18 respondents, 62.07%*)
- ☐ No (*11 respondents, 37.93%*)

**14. Please provide any other comments you have related to last mile package delivery within or through Wyoming.**

Text Responses
Wyoming is so sparsely populated and has very little public transportation that I don't see how it could work here
Our local postal system could use the help for delivery of last mile!
We have nothing here except post office, fed ex and ups.
Lack of public transportation in our state would pose problems.
local transit is NOT available
The current last mile agreement that ups has with USPS sucks. In Jackson we have different addresses for mail ( at PO Box) and parcels at the home so we already get most of our packages returned because ups is leaving them at the post office to deliver last mile and the packages have a home address and not the PO Box so USPS returns them as undeliverable. This must cost millions in shipping fees in Jackson as all my friends have the same problem and it must cost millions in wasted gas and road usage. The solution is to fix this problem by not allowing ups to drop packages at post offices thus everyone will get their package on the first try, not the usual third:/
For our business I do not believe this would be a good option. We are a food business.
Having never thought about it, I really don't know how accurate my answers are to help you. I do know that utilities are a problem because of how sparsely populated we are. I wonder if this will actually be feasible, financially. We are pretty satisfied, overall, with our delivery system now, except for the shipping costs. That is why we use Amazon Prime.

Jackson has a terrible package delivery. The agreement that ups has with the postal system, which allows them to drop packages off at post office is terrible. Ups stood oaksges atvpistbofc because it easier, then the poatvofc returns the package to sender because it has a physical address on it instead of a PO Box. It must cost amazon thousands of dollars in our town alone with the amount of packages that the post office returns. The first step to cost saving is to cancel the agreement with the postal system and have ups do its job.

Not enough local transit in place.

There is no public transit of any kind in Dubois, WY and many parts of the rural west.

I think it's a silly idea. It would be a last resort, particularly as most areas in Wyoming do not have public transportation to begin with. This is an urban "solution" for a rural state. Public Transportation is designed to move people, not packages. Vehicle maintenance schedules will also have a deleterious impact on performance. Lack of tracking is a significant concern. Uber's nearly complete lack of vetting drivers is a security concern. Package handling, dangerous/illegal product transportation. It's not amateur hour, folks. I can see this becoming a Homeland Security NIGHTMARE.

**Thank you for your time and participation!**



## APPENDIX 2: TRANSIT MANAGER SURVEY

The Western Transportation Institute at Montana State University is conducting this survey as part of a Wyoming Department of Transportation sponsored project to assess last mile commercial package delivery as a revenue generation tool for rural public transportation systems in Wyoming.

While participation in this survey is completely voluntary, we hope that you will share your knowledge and opinions with us. Please contact WYDOT or me if you have any questions about the survey or the project. Thank you for your time and participation.

Mr. Talbot J. Hauffe Transit Coordinator Office of Local Government Coordination Wyoming Department of Transportation 5300 Bishop Blvd. Cheyenne, Wyoming 82009 307-777-4384 <a href="mailto:talbot.hauffe@wyo.gov">talbot.hauffe@wyo.gov</a>	Mr. Jaydeep Chaudhari, AICP Western Transportation Institute (WTI) Montana State University PO Box 174250 Bozeman, MT 59717-4250, USA 334-332-5706 <a href="mailto:jaydeep@montana.edu">jaydeep@montana.edu</a> <a href="http://www.westerntransportationinstitute.org">www.westerntransportationinstitute.org</a>
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**Note:** Please use the following definitions to complete this survey.

**Last Mile Package Delivery:** The last leg of package's trip before it arrives on a customer's doorstep.

**Mobile Pickup Locations:** A lockbox installed at a fixed location such as a bus stop, railway station, or airport, or at a mobile location such as a bus or train. Instead of delivering products to a customers' residence or office address, a customer can opt for a mobile pickup location delivery.

**Local Transit Service:** Provides basic mobility services within a local area (town/county) and travels limited distances (10-20 miles from main town).

**Commuter Service:** Provides mobility for employment or to access health care and other services from one city/town to another city/town. One-way distances typically range from 10 to 50 miles.

**Intercity Bus Service:** Regularly scheduled public service using an over-the-road bus (motor coach) that operates with limited stops between two or multiple urbanized areas, or that connects rural areas to urbanized areas. Intercity bus service may be also an interstate service.

Name of your Transit Agency: \_\_\_\_\_

Your Email Address: \_\_\_\_\_

Your Phone Number: \_\_\_\_\_

**1. Which of the following services does your transit agency currently providing? (Check all that apply)**

- ☐ Local fixed route (*4 respondents, 33.33%*)
- ☐ Paratransit (*1 respondent, 8.33%*)
- ☐ Intercity Bus (*0 respondents*)
- ☐ Demand-Response (*11 respondents, 91.67%*)
- ☐ Commuter Bus (*2 respondents, 16.67%*)
- ☐ Other: (*2 respondents, 16.67%*)

**Text Reseponses**

WRTA is a catch all for all types of public transportation for a very large and very rural county  
medical only trips to Billings every Wednesday

**2. Please list the communities you serve with the types of services noted:**

Type of Service	Communities Served Text Responses
<b>Local Service (includes fixed route and/or demand response)</b>	Demand response City of Worland; Laramie, WY; Lander, Hudson, Riverton, Shoshoni, Pavillion, Ft. Washakie, Ethete, Dubois, Kinneare, Arapaho; Wheatland and Guernsey, WY Powell and its surrounding area; Cody, WY up to 10 mile radius; Hot Springs County; Jackson, Teton Village; Sheridan, Bighorn, Dayton, Ranchester; Pinedale and environs; Casper, Mills, Evansville, Bar Nunn and parts of Natrona County
<b>Commuter Service</b>	Lander, Hudson, Riverton, Shoshoni, Pavillion, Ft. Washakie, Ethete, Dubois, Kinneare, Arapaho; Lincoln County, Teton County Idaho

Intercity Bus Service	Sheridan
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**3. Please indicate the population groups you serve. (Check all that apply)**

- ☐ General Public (*11 respondents, 91.67%*)
- ☐ Persons with a Disability (*12 respondents, 100.00%*)
- ☐ Senior Citizens (*11 respondents, 91.67%*)
- ☐ Commuters (*4 respondents, 33.33%*)
- ☐ Other: (*3 respondents, 25.00%*)

Text Responses
Severe Medical needs, education centers, casinos, just about anything you can think of. We try to help anyone who needs transportation services.
Tourist
transportation disadvantages

**4. Which of the following innovative ways of last mile commercial package delivery are you familiar with? (Check all that apply)**

- ☐ Drones (*2 respondents, 20.00%*)
- ☐ Amazon Flex (*1 respondent, 10.00%*)
- ☐ Consolidated deliveries (USPS+UPS, USPS+Fedex, Fedex+ In town Deliver, etc.) (*10 respondents, 100.00%*)
- ☐ Parcel Lockers at gas stations, shopping centers, couriers, grocery stores, buses (*1 respondent, 10.00%*)
- ☐ Deliveries by local transit services, rail, etc (*0 respondents*)
- ☐ Deliveries by taxi services (*0 respondents*)
- ☐ Deliveries by Uber, Lyft, Cabify, Via, Ola Cabs, Wingz, GrabCar, Didi Kuaidi, etc (*0 respondents*)
- ☐ Deliveries on bikes, motor bikes, etc. (*2 respondents, 20.00%*)
- ☐ Other: (*0 respondents*)

**5. Do you currently deliver commercial packages in conjunction with your passenger services?**

- ☐ Yes (*0 respondents*)

☐ No (12 respondents, 100.00%)

**5.a. If no, are you willing to provide commercial package delivery in your community that will help to earn extra revenue for your transit system?**

☐ Yes (5 respondents, 50.00%)

☐ No (5 respondents, 50.00%)

**5.b. If yes, what kind of packages do you deliver?**

☐ Letter (0 respondents)

☐ Large Envelop (0 respondents)

☐ Packages (not more than 2' X 2') (0 respondents)

☐ Large Packages (not more than 50 linear inch) (0 respondents)

☐ Hospital/ Lab Samples (0 respondents)

**5.c. If yes, what weight of packages do you allow?**

☐ 0-5 lbs (0 respondents)

☐ 6-10 lbs (0 respondents)

☐ 11-25 lbs (0 respondents)

☐ 26-50 lbs (0 respondents)

☐ Not more than 50 lbs (0 respondents)

**5.d. If yes, which destinations does your transit service cover for package deliveries?  
(Check all that apply)**

☐ Cargo Facilities at the nearest airport (0 respondents)

☐ Hospitals in Towns (0 respondents)

☐ Railway Stations/Transfer Point (0 respondents)

☐ Commercial Package Delivery Depot (0 respondents)

☐ Nearest Intercity Bus Location (0 respondents)

☐ Regular Shipper Locations (USPS, UPS, FedEx, etc.) (0 respondents)

☐ Other: (0 respondents)

**6. What percentage of seats are typically empty in your buses on in-town trip and out of town trips?**

\_\_\_\_\_ % In Town Trips

\_\_\_\_\_ % Out of Town Trips

In-Town Responses	Out of Town Responses
25%	N/A
20%	N/A
varies greatly. Depends on time of day, season and weather. 40% maybe	Varies greatly, can be packed. 25%
50%	25%
50%	-
20%	40%
75%	25%

**7. Are you willing to remove a few seats of on your buses to turn them into a cargo space?**

- ☐ Yes (2 respondents, 22.22%)
- ☐ No (7 respondents, 77.78%)

**8. Are you willing to install mobile lockboxes on your buses?**

- ☐ Yes (2 respondents, 22.22%)
- ☐ No (7 respondents, 77.78%)

**9. Are you willing to install lockboxes to facilitate last mile package delivery at the following locations?**

- ☐ Senior Centers (6 respondents, 85.71%)
- ☐ Covered Bus Stops (2 respondents, 28.57%)
- ☐ Bus Depot (2 respondents, 28.57%)
- ☐ Other: (2 respondents, 28.57%)

**10. What could be challenging in starting a last mile package delivery by your transit services? (Check all that apply):**

- ☐ Lack of funding to retrofit buses and bus stops to accommodate packages (7 respondents, 70.00%)
- ☐ Lack of knowledge/education about package delivery handling (9 respondents, 90.00%)
- ☐ Commercial package delivery policy (5 respondents, 50.00%)
- ☐ Insufficient demand of commercial package delivery (4 respondents, 40.00%)

- ☐ Dealing with resistance from drivers, stakeholders, private companies and riders (5 respondents, 50.00%)
- ☐ Coordinating dropping-off and picking-up packages by a transit vehicle (4 respondents, 40.00%)
- ☐ Identifying suitable market, good types, routes and clients to be served (3 respondents, 30.00%)
- ☐ Integrating public transit and commercial package delivery (6 respondents, 60.00%)
- ☐ Ensuring safety, security of goods, and transit users (6 respondents, 60.00%)
- ☐ Other: (1 respondent, 10.00%)

#### Text Responses

too busy with demand passenger services

**11. Please list what additional types of resources may need to be made to last mile package delivery services in Wyoming (e.g., additional funding, new vehicles, training, technology, etc.).**

#### Text Responses

Your list above is just the tip of the iceberg. I don't think this is a good idea.

Additional funding for another driver to cover increasing transit demand and this addition.

Our priority is providing transit services to seniors and the disabled. Another driver would be necessary. I would prefer a test of the service to determine if it would be profitable. Also why would FedEx or UPS surrender their routes?

Training, technology and funding

**12. Do you think that the last mile commercial package delivery could be a good source of extra revenue for your transit system?**

- ☐ Yes (4 respondents, 50.00%)
- ☐ No (4 respondents, 50.00%)

**13. Please provide any other comments you have related to last mile package delivery within or through Wyoming.**

#### Text Responses

I am concerned that this service should be provided by a private packaging company, not a public human transportation company. These are very different. First and foremost WRTA is a public transportation company according to our mission. It is difficult enough top manage what we do already, have the expertise and resources to effectively run an operation like this would be extremely difficult and unlikely. WRTA would not even consider performing a last

mile delivery company unless it was extremely profitable as we need to focus on our mission. In most cases, WRTA has a strict passenger pick up schedule we need to maintain and could not do deliveries with additional stops.

I would need more information on the service, as this area currently has a private business that does this I believe.

I guess my concern is just how much income can we expect to generate and what if we don't have a passenger fare going that way (out of town)? Would we be required to deliver the package right away anyway?

See above.

**Thank you for your time and participation!**

### APPENDIX 3: STATE DOT SURVEY

The Western Transportation Institute (WTI) at Montana State University is working on behalf of the Wyoming Department of Transportation on a project to assess last mile commercial package delivery as a revenue generation tool for rural public transportation systems in Wyoming.

As a part of this project, WTI is collecting information on commercial package delivery policies for rural transportation system of various states. We are also soliciting the opinions of state DOTs on whether a last mile package delivery would be a great option as revenue source to explore.

While participation in this survey is completely voluntary, we hope that you will share your knowledge of public transportation policies of your state with us. Within the survey, you will see that we ask for any documentation you may have on your state's policies for allowing commercial package deliveries through public transportation. Please email that documentation to me at my email address noted below.

Please contact WYDOT or me if you have any questions about survey or the project. Thank you for your time and participation.

Mr. Talbot J. Hauffe Transit Coordinator Office of Local Government Coordination Wyoming Department of Transportation 5300 Bishop Blvd. Cheyenne, Wyoming 82009 307-777-4384 <a href="mailto:talbot.hauffe@wyo.gov">talbot.hauffe@wyo.gov</a>	Mr. Jaydeep Chaudhari, AICP Western Transportation Institute (WTI) Montana State University PO Box 174250 Bozeman, MT 59717-4250, USA 334-332-5706 <a href="mailto:jaydeep@montana.edu">jaydeep@montana.edu</a> <a href="http://www.westerntransportationinstitute.org">www.westerntransportationinstitute.org</a>
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**Note:** Please use the following definitions to complete this survey.

**Last Mile Package Delivery:** The last leg of a package's trip before it arrives on a customer's doorstep.

**Mobile Pickup Locations:** A lockbox installed at a fixed location such as a bus stop, railway station, or airport, or a mobile location such as a bus or train. Instead of delivering products to a customer's residence or office address, a customer can opt for a mobile pickup location delivery.

**Local Transit Service:** Provides basic mobility services within a local area (town/county) and travels limited distances (10-20 miles from main town).



**Commuter Service:** Provides mobility for employment or to access health care and other services from one city/town to another city/town. One-way distances typically range from 10 to 50 miles.

**Intercity Bus Service:** Regularly scheduled public service using an over-the-road bus (motor coach) that operates with limited stops between two or multiple urbanized areas, or that connects rural areas to urbanized areas. Intercity bus service may be also an interstate service.

Your Contact Information (Optional) Note: We will not report this information on this study report)

Name:

Email address:

Your organization (DOT):

**1. Which of the following public transportation services are available (funded and/or supported) by your State DOT? (Check all that apply)**

- ☐ Local fixed route (*10 respondents, 83.33%*)
- ☐ Paratransit (*10 respondents, 83.33%*)
- ☐ Intercity Bus (*11 respondents, 91.67%*)
- ☐ Demand-Response (*11 respondents, 91.67%*)
- ☐ Commuter Bus (*5 respondents, 41.67%*)
- ☐ Other: (*1 respondent, 8.33%*)

**Text Responses**

Van Pool

**2. Which of the following innovative ways of last mile commercial package delivery are you familiar with? (Check all that apply)**

- ☐ Drones (*3 respondents, 30.00%*)
- ☐ Amazon Flex (*5 respondents, 50.00%*)
- ☐ Consolidated deliveries (USPS+UPS, USPS+Fedex, Fedex+ In town Deliver, etc.) (*8 respondents, 80.00%*)
- ☐ Parcel Lockers at gas stations, airport, railway station, bus stations, shopping centers, couriers, grocery stores, etc. (*4 respondents, 40.00%*)
- ☐ Deliveries by Local transit services such as buses, rail, intercity buses, etc. (*2 respondents, 20.00%*)

- ☐ Deliveries by Taxi services (2 respondents, 20.00%)
- ☐ Deliveries by Uber, Lyft, Cabify, Via, Ola Cabs, Wingz, GrabCar, Didi Kuaidi, etc (2 respondents, 20.00%)
- ☐ Deliveries on bikes, motor bikes, etc. (5 respondents, 50.00%)
- ☐ Other: (0 respondents)

**3. Do you think that rural public transportation systems should provide last mile package delivery along with the intercity bus systems in your state?**

- ☐ Yes (7 respondents, 58.33%)
- ☐ No (5 respondents, 41.67%)

**4.a.Does any of your state’s rural public transportation system deliver commercial packages along with passenger services?**

- ☐ Yes (3 respondents, 25.00%)
- ☐ No (9 respondents, 75.00%)

**4.b. If yes, please provide the name of services?**

Text Responses
Navajo Transit
I believe that Manley Village Express a Tribal Transit program in interior Alaska provides package service, although they are no longer a state subrecpiant so I am not 100% sure.
Black Hill Stage Lines, AllTrans, Inc., Jefferson Lines

**5. Do you think that the last mile commercial package delivery could be a good source of extra revenue for your state’s rural transit systems?**

- ☐ Yes (6 respondents, 66.67%)
- ☐ No (3 respondents, 33.33%)

**6. Does your department have a commercial package delivery policy in place or guidance available for rural transportation systems?**

- ☐ Yes (0 respondents)
- ☐ No (9 respondents, 100.00%)

**6.a. If yes, please provide link for such documents?**

*No responses.*

**7. What are potential challenges in starting a last mile package delivery by rural transit services? (Check all that apply):**

- ☐ Lack of funding to retrofit buses and bus stops to accommodate packages (7 respondents, 77.78%)
- ☐ Lack of knowledge/education about package delivery handling (9 respondents, 100.00%)
- ☐ Commercial package delivery policy (4 respondents, 44.44%)
- ☐ Insufficient demand of commercial package delivery (5 respondents, 55.56%)
- ☐ Dealing with resistance from drivers, stakeholders, private companies and riders (7 respondents, 77.78%)
- ☐ Coordinating dropping-off and picking-up packages by a transit vehicle (8 respondents, 88.89%)
- ☐ Identifying suitable market, good types, routes and clients to be served (6 respondents, 66.67%)
- ☐ Integrating public transit and commercial package delivery (9 respondents, 100.00%)
- ☐ Ensuring safety, security of goods, and transit users (7 respondents, 77.78%)
- ☐ Other: (1 respondent, 11.11%)

**Text Responses**

Ensuring that this is maintained as incidental use under current regulations.

**8. Please list what additional types of resources are needed to provide to rural transportation systems to make a last mile package delivery service a reality in rural areas. (e.g., additional funding to retrofit buses, new policy, guidebook, lockbox facility, new vehicles, training, technology, etc.).**

**Text Responses**

Infrastructure and vehicle add-on needs storage and electronics.

All of the above, union buy in, grantee buy in

Additional funding to retrofit buses, Lockbox facility, Training, Technology.

Lack of information and guidance is needed.

Training and marketing

**9. Does your state have any unique or exceptional last mile package delivery projects or any other rural transportation projects that have been recently completed, or are currently underway that you would like to share with us?**

**Text Responses**

No
No
None
Not to my knowledge
No

**10. Please provide any other comments you may have about package delivery services integrated with public transportation services.**

Text Responses
Transit Driver should not leave vehicle
Requires more time and coordination with drivers already stressed with existing service. Will increase expenses and insurance. Will increase service delivery times for transit service.
Might be a good way to increase revenue, but there is very little information out there on this.
Thank You

Thank you for participating in this survey! We appreciate your time and for sharing your information on these issues. We hope you will not mind if we follow up with you, if necessary, to clarify the information you have shared with us.

Please provide any other studies, information, or examples that will help us understand your efforts relating to package delivery through rural transportation services in your state. Send information to:

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Montana State University  
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Bozeman, MT 59717-4250, USA  
jaydeep@montana.edu  
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# APPENDIX 4: POTENTIAL REVENUE PER ZIP CODE

							*Potential Revenue in \$ (if transit systems deliver 20% of the total package.)	
County	Zip Code	Total Housing Units	Average Packages Per Household Per Week	Average Packages Per Zip Code Per Week	Average Packages Per Zip Code Per Year			Beneficiary Transit System
Albany	82051	24	0.65	15.6	811.2	444.5		
	82052	5	0.65	3.3	169.0	92.6		
	82055	398	0.65	258.7	13,452.4	7,371.9		Greyhound Bus Line
	82058	35	0.65	22.8	1,183.0	648.3		PATS Neighborhood City Bus
	82063	184	0.65	119.6	6,219.2	3,408.1		PATS WAVE
	82070	9694	0.65	6,301.1	327,657.2	179,556.1		UW Paratransit
	82072	7832	0.65	5,090.8	264,721.6	145,067.4		UW Transit
	82073	0	0.65	0.0	0.0	0.0		Safe Ride
	82083	265	0.65	172.3	8,957.0	4,908.4		Laramie Link
	82084	38	0.65	24.7	1,284.4	703.9		Night Owl Express
Big Horn	82410	827	0.65	537.6	27,952.6	15,318.0		
	82411	204	0.65	132.6	6,895.2	3,778.6		
	82412	230	0.65	149.5	7,774.0	4,260.2		
	82420	340	0.65	221.0	11,492.0	6,297.6		
	82421	176	0.65	114.4	5,948.8	3,259.9		
	82422	33	0.65	21.5	1,115.4	611.2		North Big Horn Senior Center
	82426	1417	0.65	921.1	47,894.6	26,246.2		South Big Horn Senior Center
	82428	89	0.65	57.9	3,008.2	1,648.5		
	82431	1588	0.65	1,032.2	53,674.4	29,413.6		
	82432	128	0.65	83.2	4,326.4	2,370.9		
	82434	55	0.65	35.8	1,859.0	1,018.7		
	82441	101	0.65	65.7	3,413.8	1,870.8		
Campbell	82716	7746	0.65	5,034.9	261,814.8	143,474.5		Campbell County Senior Center
	82718	9673	0.65	6,287.5	326,947.4	179,167.2		
	82725	79	0.65	51.4	2,670.2	1,463.3		Powder River Transportation (Charter Only)
	82727	871	0.65	566.2	29,439.8	16,133.0		
	82731	40	0.65	26.0	1,352.0	740.9		Jefferson Bus Lines
	82732	1103	0.65	717.0	37,281.4	20,430.2		Dakota Trailways
Carbon	82301	4181	0.65	2,717.7	141,317.8	77,442.2		Carbon County Grehound Bus Lines
	82321	385	0.65	250.3	13,013.0	7,131.1		
	82323	88	0.65	57.2	2,974.4	1,630.0		City of Hanna

		82324	210	0.65	136.5	7,098.0	3,889.7	Transportation Dixon-Carbon County Senior Services Rawlins-Carbon County Senior Services City of Rawlins - CATS Bus Saratoga-Carbon County Senior Services
		82325	617	0.65	401.1	20,854.6	11,428.3	
		82327	750	0.65	487.5	25,350.0	13,891.8	
		82329	211	0.65	137.2	7,131.8	3,908.2	
		82331	1524	0.65	990.6	51,511.2	28,228.1	
		82332	90	0.65	58.5	3,042.0	1,667.0	
		82334	335	0.65	217.8	11,323.0	6,205.0	
		82335	16	0.65	10.4	540.8	296.4	
Converse		82224	6	0.65	3.9	202.8	111.1	Douglas/Glenrock/Converse County Public Transit Arrow/Black Hills Stage Lines
		82229	48	0.65	31.2	1,622.4	889.1	
		82633	4710	0.65	3,061.5	159,198.0	87,240.5	
		82637	1733	0.65	1,126.5	58,575.4	32,099.3	
Crook		82710	180	0.65	117.0	6,084.0	3,334.0	Crook County Senior Citizen Transportation
		82711	85	0.65	55.3	2,873.0	1,574.4	
		82712	158	0.65	102.7	5,340.4	2,926.5	
		82714	71	0.65	46.2	2,399.8	1,315.1	
		82720	531	0.65	345.2	17,947.8	9,835.4	
		82721	1436	0.65	933.4	48,536.8	26,598.2	
		82729	1055	0.65	685.8	35,659.0	19,541.1	
Fremont		82501	8110	0.65	5,271.5	274,118.0	150,216.7	Express Arrow Stage Lines Help for Health Van High Country Senior Center Lander Senior Center Shoshoni Senior Center Wind River Transportation Authority - WRTA Riverton Senior Center and Public Transportation
		82510	123	0.65	80.0	4,157.4	2,278.3	
		82512	113	0.65	73.5	3,819.4	2,093.0	
		82513	1464	0.65	951.6	49,483.2	27,116.8	
		82514	481	0.65	312.7	16,257.8	8,909.3	
		82515	202	0.65	131.3	6,827.6	3,741.5	
		82516	247	0.65	160.6	8,348.6	4,575.0	
		82520	5820	0.65	3,783.0	196,716.0	107,800.4	
		82523	483	0.65	314.0	16,325.4	8,946.3	
		82642	57	0.65	37.1	1,926.6	1,055.8	
Goshen		82212	257	0.65	167.1	8,686.6	4,760.3	Senior Friendship Center
		82217	44	0.65	28.6	1,487.2	815.0	
		82219	16	0.65	10.4	540.8	296.4	
		82221	231	0.65	150.2	7,807.8	4,278.7	
		82223	565	0.65	367.3	19,097.0	10,465.2	
		82240	4509	0.65	2,930.9	152,404.2	83,517.5	
		82243	36	0.65	23.4	1,216.8	666.8	
		82244	253	0.65	164.5	8,551.4	4,686.2	

Hot Springs	82430	30	0.65	19.5	1,014.0	555.7	Hot Springs County Senior Center
	82443	2515	0.65	1,634.8	85,007.0	46,583.8	
Johnson	82639	401	0.65	260.7	13,553.8	7,427.5	Arrow/Black Hills Stage Lines Jefferson Lines Johnson County Senior Center Kaycee KATS
	82640	51	0.65	33.2	1,723.8	944.6	
	82834	3983	0.65	2,589.0	134,625.4	73,774.7	
Laramie	82001	16868	0.65	10,964.2	570,138.4	312,435.8	Cheyenne Transit Program - Curb to Curb Cheyenne Transit Program - Route Bus Black Hills Stage Lines - Greyhound
	82005	7	0.65	4.6	236.6	129.7	
	82007	8809	0.65	5,725.9	297,744.2	163,163.8	
	82009	13468	0.65	8,754.2	455,218.4	249,459.7	
	82050	95	0.65	61.8	3,211.0	1,759.6	
	82053	644	0.65	418.6	21,767.2	11,928.4	
	82054	257	0.65	167.1	8,686.6	4,760.3	
	82059	90	0.65	58.5	3,042.0	1,667.0	
	82060	191	0.65	124.2	6,455.8	3,537.8	
	82061	0	0.65	0.0	0.0	0.0	
	82081	19	0.65	12.4	642.2	351.9	
	82082	824	0.65	535.6	27,851.2	15,262.5	
Lincoln	83101	1706	0.65	1,108.9	57,662.8	31,599.2	Cokeville Senior Center Kemmerer Senior Center Salt Lake Express Salt River Senior Center Thayne Senior Center
	83110	1869	0.65	1,214.9	63,172.2	34,618.4	
	83111	148	0.65	96.2	5,002.4	2,741.3	
	83112	190	0.65	123.5	6,422.0	3,519.3	
	83114	383	0.65	249.0	12,945.4	7,094.1	
	83116	325	0.65	211.3	10,985.0	6,019.8	
	83118	654	0.65	425.1	22,105.2	12,113.6	
	83119	74	0.65	48.1	2,501.2	1,370.7	
	83120	316	0.65	205.4	10,680.8	5,853.1	
	83121	5	0.65	3.3	169.0	92.6	
	83122	165	0.65	107.3	5,577.0	3,056.2	
	83123	348	0.65	226.2	11,762.4	6,445.8	
	83124	70	0.65	45.5	2,366.0	1,296.6	
	83126	165	0.65	107.3	5,577.0	3,056.2	
	83127	1755	0.65	1,140.8	59,319.0	32,506.8	
	83128	911	0.65	592.2	30,791.8	16,873.9	
Natrona	82601	12923	0.65	8,400.0	436,797.4	239,365.0	Casper Area Transportation Coalition - CATC The Bus
	82604	11233	0.65	7,301.5	379,675.4	208,062.1	
	82609	7784	0.65	5,059.6	263,099.2	144,178.4	

		82620	352	0.65	228.8	11,897.6	6,519.9	Arrow/Black Hills Stage Lines
		82630	10	0.65	6.5	338.0	185.2	
		82635	142	0.65	92.3	4,799.6	2,630.2	
		82636	1910	0.65	1,241.5	64,558.0	35,377.8	
		82638	0	0.65	0.0	0.0	0.0	
		82643	250	0.65	162.5	8,450.0	4,630.6	
		82644	729	0.65	473.9	24,640.2	13,502.8	
		82646	0	0.65	0.0	0.0	0.0	
		82648	0	0.65	0.0	0.0	0.0	
Niobrara		82222	87	0.65	56.6	2,940.6	1,611.4	Niobrara Senior Citizens
		82225	1061	0.65	689.7	35,861.8	19,652.3	
		82227	98	0.65	63.7	3,312.4	1,815.2	
		82242	50	0.65	32.5	1,690.0	926.1	
Park		82190	303	0.65	197.0	10,241.4	5,612.3	Cody Senior Center Powell Senior Center
		82414	7643	0.65	4,968.0	258,333.4	141,566.7	
		82423	110	0.65	71.5	3,718.0	2,037.5	
		82433	498	0.65	323.7	16,832.4	9,224.2	
		82435	5234	0.65	3,402.1	176,909.2	96,946.2	
		82440	94	0.65	61.1	3,177.2	1,741.1	
		82450	132	0.65	85.8	4,461.6	2,445.0	
Platte		82201	3480	0.65	2,262.0	117,624.0	64,458.0	Guernsey Senior Center Wheatland Services for Seniors Wheatland Thrift Store
		82210	186	0.65	120.9	6,286.8	3,445.2	
		82213	518	0.65	336.7	17,508.4	9,594.6	
		82214	650	0.65	422.5	21,970.0	12,039.6	
		82215	92	0.65	59.8	3,109.6	1,704.1	
Sheridan		82801	11583	0.65	7,529.0	391,505.4	214,545.0	Arrow/Black Hills Stage Lines Jefferson Lines RENEW of Sheridan Goose Creek Transit
		82831	93	0.65	60.5	3,143.4	1,722.6	
		82832	374	0.65	243.1	12,641.2	6,927.4	
		82833	108	0.65	70.2	3,650.4	2,000.4	
		82835	170	0.65	110.5	5,746.0	3,148.8	
		82836	590	0.65	383.5	19,942.0	10,928.2	
		82837	17	0.65	11.1	574.6	314.9	
		82838	206	0.65	133.9	6,962.8	3,815.6	
		82839	525	0.65	341.3	17,745.0	9,724.3	
		82842	719	0.65	467.4	24,302.2	13,317.6	
		82844	7	0.65	4.6	236.6	129.7	
		82845	12	0.65	7.8	405.6	222.3	
Sublette		82922	292	0.65	189.8	9,869.6	5,408.5	



		82923	344	0.65	223.6	11,627.2	6,371.7	Pioneer Senior Center Rendezvous Pointe Senior Center
		82925	400	0.65	260.0	13,520.0	7,409.0	
		82941	2518	0.65	1,636.7	85,108.4	46,639.4	
		83113	1302	0.65	846.3	44,007.6	24,116.2	
		83115	987	0.65	641.6	33,360.6	18,281.6	
Sweetwater		82322	79	0.65	51.4	2,670.2	1,463.3	STAR Bus Greyhound
		82336	271	0.65	176.2	9,159.8	5,019.6	
		82901	12496	0.65	8,122.4	422,364.8	231,455.9	
		82929	103	0.65	67.0	3,481.4	1,907.8	
		82932	398	0.65	258.7	13,452.4	7,371.9	
		82934	123	0.65	80.0	4,157.4	2,278.3	
		82935	5142	0.65	3,342.3	173,799.6	95,242.2	
		82938	104	0.65	67.6	3,515.2	1,926.3	
		82942	53	0.65	34.5	1,791.4	981.7	
		82943	88	0.65	57.2	2,974.4	1,630.0	
Teton		82945	162	0.65	105.3	5,475.6	3,000.6	Senior Center of Jackson Hole Salt Lake Express START Bus Wind River Transportation Authority - WRTA
		83001	8479	0.65	5,511.4	286,590.2	157,051.4	
		83011	158	0.65	102.7	5,340.4	2,926.5	
		83012	266	0.65	172.9	8,990.8	4,927.0	
		83013	452	0.65	293.8	15,277.6	8,372.1	
		83014	2682	0.65	1,743.3	90,651.6	49,677.1	
		83025	649	0.65	421.9	21,936.2	12,021.0	
Uinta		83414	355	0.65	230.8	11,999.0	6,575.5	Greyhound Uinta Senior Citizens Center - Evanston Uinta Senior Citizens Center - Mountain View
		82930	6761	0.65	4,394.7	228,521.8	125,229.9	
		82933	309	0.65	200.9	10,444.2	5,723.4	
		82936	7	0.65	4.6	236.6	129.7	
		82937	1458	0.65	947.7	49,280.4	27,005.7	
		82939	804	0.65	522.6	27,175.2	14,892.0	
Washakie		82944	208	0.65	135.2	7,030.4	3,852.7	Worland Senior Center Ten Sleep Senior Center
		82401	3461	0.65	2,249.7	116,981.8	64,106.0	
Weston		82442	399	0.65	259.4	13,486.2	7,390.4	Dakota Trailways Powder River Transportation (Coach USA) RENEW of Newcastle Weston County Senior Services
		82701	2470	0.65	1,605.5	83,486.0	45,750.3	
		82715	0	0.65	0.0	0.0	0.0	
		82723	227	0.65	147.6	7,672.6	4,204.6	
		82730	905	0.65	588.3	30,589.0	16,762.8	