

Memorandum

TO: Missouri Supply Chain Task Force

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RE: Workforce Transportation Solutions for the Warehousing & Manufacturing Sectors

This memo provides an overview of workforce challenges in the warehousing and manufacturing sector and identifies best practices for workforce transportation service provision. This memo is intended to provide the Missouri Supply Chain Task Force (SCTF) with a range of potential solutions that can address barriers to workforce participation for employees in the warehousing and manufacturing sectors. These solutions include dedicated microtransit programs serving employment centers, rideshare partnerships, transit service and coordination brokerage services, and funding agreements between public agencies and employment centers.

Workforce Challenges in the Warehousing and Manufacturing Sector

Workforce Readiness

The warehousing and manufacturing sectors offer many career pathways that do not rely on degrees from four-year colleges or universities. However, many careers in these sectors, even at the entry-level, require training and/or certification for employees to be workforce-ready. These certification programs are often linked to technical skillsets that are involved in the work environment and allow workers to demonstrate their proficiency with tools, technologies, processes, and regulations involved in warehousing operations or industrial production. Common certifications for these sectors are presented in Table 1:

Table 1: Common Certifications for Entry-Level Jobs in the Warehousing and Manufacturing Sectors

| Warehousing Sector | Manufacturing Sector |
|--|--|
| <ul style="list-style-type: none"> • Certified in Production and Inventory Management • Certified Supply Chain Professionals • Forklift operator • Commercial Driver's License (CDL) | <ul style="list-style-type: none"> • National Career Readiness Certificate (NCRC) • Certified Welder • Certified Production Technician (CPT) • Precision Sheet Metal Operator (PSMO) |

While these requirements can be obtained in a relatively short amount of time, with certification programs taking as little as six weeks or as long as a year to complete, many of these programs require people to demonstrate their skills and pass an assessment in a simulated or actual work environment. For example, the Missouri CDL certification program includes a skill testing component that must be completed at a defined Missouri State Highway Patrol CDL Test Site.¹

Although these certification programs ensure that workers are able to perform their tasks safely and efficiently, their existence necessitates the establishment of a pipeline to prepare workers for employment in these fields. When a manufacturing plant or logistics center opens or expands its operations within an area, the business must be confident that the workforce in the area will be available to meet the increased demand for labor.

Barriers to Workforce Participation

The availability of the workforce, however, is not only shaped by a worker's individual skillset. The on-site requirement of training programs raises an additional component of workforce readiness that can greatly influence the supply of labor: geographic access. A worker may be constrained in their ability to access job training facilities and employment centers based on where they live and what options they have to travel. Accessible transportation, affordable housing, and reliable and affordable childcare can all create barriers to workforce participation for workers in the warehousing and manufacturing sectors.

Since warehouses and manufacturing facilities have large physical footprints and rely on access to highways in order to access markets, they are often located in areas with lower land costs where facilities are spread out over a distance.

While the locations in which the facilities are located may have low housing costs due to low land costs, the large industrial footprints may limit the amount of housing that can be built, either due to land use regulations or unattractive markets for developers. The noise, emissions, and other impacts associated with industrial production and freight movement also means these facilities are situated far away from residential areas. Affordable housing in residential areas may therefore be located far away from the job sites, requiring long and costly commute times.

Low-income households, who fill many of the entry-level roles at warehouses and manufacturing plants, are less likely to have access to a vehicle and spend more of their income on transportation than higher-income households.² Lengthy commutes in private vehicles can exacerbate these household costs, reducing the economic value of the job.

However, transit access to these employment centers can be difficult to provide for a similar reason: the geographic separation between housing and employment reduces the density of activity that is favorable to effective public transit service. When transit can connect these origins and destinations, it often does so with limited pick-up locations in order to keep travel times low, limiting the number of access points for workers. These transit services also often operate at a low frequency since it can take too long for the vehicle to complete its route and return to service.

¹ Missouri Department of Revenue. Commercial Drivers License Issuance. <<https://dor.mo.gov/driver-license/issuance/commercial/>>

² U.S. Department of Labor Bureau of Labor Statistics. Consumer Expenditure Survey.

If a worker misses their trip, they may have to wait upwards of an hour for the next trip, which can cause them to miss their shift.

Another risk raised by a missed transit trip highlights another barrier to workforce transportation: accessible childcare. If a worker misses their transit trip and has to wait an hour, they may miss their pick-up window at a childcare facility and lose access to that service. However, the number of childcare facilities is similarly constrained in lower-density areas where these employment centers are located, raising costs and limiting options for working families.

Transportation Solutions for Workforce Challenges

The geographic barriers to workforce participation can be addressed with more cost-effective alternative transportation solutions. These solutions include dedicated microtransit service for employment centers, rideshare partnerships, transit service coordination and brokerage services, and funding agreements between employment centers and public agencies. Table 2 below provides brief descriptions of each solution and highlights the solution’s benefits:

Table 2: Summary of Workforce Transportation Solutions

| Solution | Description | Benefits |
|--|--|--|
| Dedicated microtransit service for employment centers | Flexible transit systems designed to connect workers with specific employment centers | <ul style="list-style-type: none"> Improves responsiveness of transit in low-density areas Leverages technology for more flexible scheduling and routing |
| Rideshare partnerships | Subsidized trips for flexible workforce transportation provided by Transportation Network Companies (TNCs) like Uber, Lyft, or taxi cabs | <ul style="list-style-type: none"> Allows supply of service to scale with demand Leverages TNC platforms for scheduling, booking, and payment |
| Transit service coordination and brokerage services | Centralized system for booking and scheduling trips across several smaller service providers | <ul style="list-style-type: none"> Increases geographic scope and coverage of services Reduces administrative costs for service providers |
| Funding agreements with employment centers | Partnership agreements with employers to cover transportation costs for dedicated service | <ul style="list-style-type: none"> Reduces operating costs for service providers Can establish greater consistency in funding sources |

These solutions focus on expanding the accessibility, availability, and reliability of transportation services. Many solutions leverage available technologies in trip planning, scheduling, and delivery. Since these solutions are often designed to meet non-traditional transit commutes or address the needs of specific populations or geographies, they represent effective strategies to

reduce barriers to work for low-income workers who need to travel to and from large warehousing or manufacturing employment centers. An overview of best practices and case studies for these service offerings follow.

Dedicated Microtransit for Employment Centers

Microtransit services apply technology solutions to traditional demand-response transit services to make them more accessible, flexible, and responsive. Demand-response transit services schedule flexible routes based on the patterns of origins and destinations requested by riders. Demand-response services often operate in areas with population densities that are too low to support the higher capacity of a fixed-route system and instead rely on smaller vehicles; these environments include urban areas as well as rural areas. These programs use call centers for trip booking and scheduling software to build routes. Because of the multiple systems involved and the limited service capacity, customers have to arrange their trips several days in advance and receive a dedicated timeframe for pick-up and drop-off.

Microtransit systems leverage advancements in scheduling and routing software, providing customers with smartphone applications and tech-enabled call centers to request trips in “real-time.” These services give customers greater flexibility for travel and reduce wait times for pick-up compared to traditional demand-response services. Microtransit has been implemented under a variety of models, from turnkey contracting operations with companies that provide the software, vehicles, and operators to more targeted deployments that incorporate new software into a transit provider’s existing service network.

Best Practices

Microtransit is most effective when it is implemented to serve a well-defined purpose. This practice may involve defining a specific rider population to serve (e.g., the elderly), establishing a geographic area (e.g., a downtown district) in which the service operates, or meeting demand for a particular travel pattern (e.g., nonstandard work commutes for third-shift workers).

Microtransit services often struggle to accommodate a higher level of demand than predicted since the small vehicles and low wait times that customers expect limit the available capacity to absorb a large number of riders. As a result, microtransit services should prioritize providing a high level of service quality to a well-defined base of ridership. This prioritization may require setting limits on the number of trips a customer may take, the locations to which a customer may travel, and the span of service in which the service operates.

Since microtransit programs often leverage new service models and tools and are deployed for specific use cases, riders may be unsure of how to access the service and where they can travel on the vehicles. Persistent engagement campaigns are essential to build familiarity with the new system. Engagement efforts should work with community advocates and institutional partners from the private, public, and non-profit sectors to establish community trust and widen reach.

Case Studies

In early 2022, the University of Wisconsin-Milwaukee and the Southeastern Wisconsin Regional Planning Commission established FlexRide Milwaukee, a microtransit service designed to

connect Milwaukee residents to an “employment zone,” consisting of employment centers in the neighboring cities of Menomonee Falls and Butler. The purpose of the program is to close the first-mile/last-mile gap between the existing transit service area and suburban employment centers. This program allows current and prospective employees to request trips from zones within the Milwaukee County Transit System (MCTS)’s service area to an area of concentrated jobs. Participants must apply to the program, and if they are approved, they receive a dedicated access code to make trips requests. Trips can be requested in real-time through a smartphone application or a call center. Customers are able to request wheelchair-accessible vehicles.

Business organizations and the Waukesha-Ozaukee-Washington Workforce Development Board are working with the FlexRide program to recruit employers to participate and build the number of eligible workplace destinations within the program zone. The program is funded to run through Fall 2022, at which point the program will be evaluated to determine its success.

Rideshare Partnerships

Rideshare partnerships are agreements established between a transit provider or a public agency and a Transportation Network Company (TNC), like Uber, Lyft, or taxi companies. A TNC uses a network of independent operators (who often drive their own vehicles) to provide on-demand transportation service to customers. These customers use the TNC’s common platform, such as a smartphone application, website, or call-in number, to arrange trips with the independent operators and pay for the trip. Under a rideshare partnership, the transit provider or public agency establishes a program to subsidize trips for customers on rideshare vehicles. Since the rideshare company uses a common platform for trip booking,

Many transit agencies have established these rideshare partnership programs as a way to fill in gaps in their transit network, using rideshare vehicles as a “first-mile/last-mile” solution to allow customers to travel to or from fixed-route transit stop that is more than a quarter-mile from their origin or destination.³ These services have also been used as replacement services for customers when transit service is no longer running, i.e. as a late-night service or emergency ride home.

Best Practices

Best practices for rideshare partnerships establish parameters in the subsidy structure to manage costs and set clear standards for accessibility to ensure that rider needs are met.

Parameters for the subsidy structure should include a maximum value that the transit agency will cover for each customer. The value may be structured as a per-trip maximum or a cap on the number of trips for which a customer may receive subsidies. The subsidy structure may also be limited to certain riders, such as the elderly, people with disabilities, or other members of a specified program (e.g., Medicaid recipients), depending on the intended purpose of the subsidy program. Since rideshare providers use a common platform for trip booking, it is possible for an agency to adjust the program requirements. These parameters enable the sponsor agency to estimate and contain program costs.

³ A quarter-mile is the distance many transit agencies use as a benchmark for a reasonable distance that customers may be expected to travel on their own in order to access transit service.

A risk associated with rideshare partnerships is the fact that independent contractors may not drive vehicles that are accessible to people who use wheelchairs or have mobility challenges. To mitigate this risk, many transit providers have established rigorous standards for rideshare companies to provide access to Wheelchair Accessible Vehicles (WAVs). This access is often maintained by the rideshare company entering into an agreement with a dedicated WAV fleet provider. The partnership agreement should either estimate the number of WAVs needed to meet demand or set performance standards that ensure people with mobility challenges receive service equitable to the rest of the users, i.e., comparable wait times for pick-up.

Case Studies

In 2019, the Valley Regional Transit (VRT) Authority, which serves the Boise, ID metropolitan area, established VRT Late Night as a pilot subsidy program for low-income workers traveling between the hours of 9pm and 6am. Under the program, riders receive a subsidy of up to \$20 per trip for trips taken on Lyft. The program establishes eligibility requirements for participants, including proof of employment and documentation of low-income benefits received; each eligible participant receives a specific promotional code in order to access the program.

After its initial pilot phase, VRT expanded the program's service area to cover the city of Nampa due to early successes with service delivery and sustained demand.⁴

Transit Service Brokerage and Coordination Services

Transit service brokerage and coordination services consist of a centralized agent who coordinates trips for customers across multiple transit providers. This model is often established for specific transit programs, such as Human Services Transportation (HST) or Non-Emergency Medical Transportation (NEMT) programs that connect customers with specialized transportation services under certain eligibility conditions. A brokerage model may be maintained by a state agency, a regional agency, or a transit service provider.

Under a brokerage model, eligible customers contact the coordinating agency to request a trip. The coordinating agency then assigns the trip to a contracted provider based on several criteria, including the provider's available capacity during the requested trip time, the provider's proximity to the customer's requested origin and destination, and the cost of completing the trip.

A brokerage model reduces the administrative costs for providers by eliminating the need for each provider to maintain its own trip booking and scheduling system and expands the geographic coverage of transit service by connecting several smaller providers into a more comprehensive network. Additionally, the model streamlines the customer experience by establishing a single point of contact in an environment where a customer has multiple options available to them, but may not be able to use a given transit provider in all circumstances due to the provider's capacity or eligibility requirements for travel.

⁴ Idaho News 6. "Valley Regional Transit expanding VRT Late Night Program to Nampa." 31 July 2019. <<https://www.kivitv.com/news/valley-regional-transit-expanding-vrt-late-night-program-to-nampa>>

Best Practices

Brokerage models rely on a clear understanding of all available transit services and community needs, recognizing the full spectrum of travel needs and the specialized services needed to deliver them. To execute this vision, a brokerage should have clear standards for how service providers can become eligible to provide different services and what data the providers must report on to measure performance. For customers, the brokerage should provide guidance, education, and training to help them understand the transit services for which they are eligible. The standards should also use multiple modes of communication for customers to schedule trips and for service providers to bid on trips and confirm the schedule.

Additionally, brokerage models should be designed as iterative services that can expand to include new operators and new service models. To achieve this, brokers should establish multiple communication channels and registration processes so that service providers can provide updates to the broker about their available capacity, their safety records, and the types of specialized services they are able to provide, which may be determined by the funding they receive (e.g., Veterans transportation, NEMT, etc.). Brokers should also maintain relationships with social service agencies and community organizations to identify additional operators that can join the network of service providers.

Case Studies

The Montachusett Regional Transit Authority (MART) in Massachusetts serves as the regional broker for HST in nine counties. MART's brokerage was initially established for the transit authority's two-county service area, but its ability to manage costs while adding service providers led state agencies to expand its coverage, and it now serves over 80% of all communities in Massachusetts. MART's brokerage covers transportation services funded by a wide array of state agencies, from the Department of Mental Health to the Commission for the Blind. MART uses a web-based, real-time competitive bidding system for trips to reduce prices and to minimize the delay between receiving trip requests and building schedules for travel.

MART operates under a set of performance standards that define responsibilities for the broker and for providers. Defined roles and responsibilities for the broker include the maintenance of customer eligibility conditions and the review, approval, and administration of qualified transit providers. Defined roles and responsibilities for the transportation providers include the minimum requirements that operators must meet for training and that vehicles must meet for safety. Performance metrics across all regions are reported out for each program to the Massachusetts Human Service Transportation Office.⁵

Funding Agreements with Employers

A funding agreement with employers represents a public-private partnership between the employer, the transit service provider, and/or the public agency to fund the costs for providing workforce transportation to the employer's workers. This agreement acknowledges that the

⁵ Transportation Research Board. "Examining the Effects of NEMT Brokerages on Transportation Coordination." Presentation. 25 Oct 2018. <<https://onlinepubs.trb.org/onlinepubs/webinars/181025.pdf>>

employer is receiving a service that benefits them by reducing workforce costs (i.e., dealing with turnover caused by loss of transportation options among employees).

Best Practices

Best practices for a funding agreement establish clear terms for cost-sharing and service provision, as well as roles and responsibilities for each party engaged. The terms for service provision should include the hours and days during which service will operate and the level of service that will be provided to the employer(s), in terms of frequency, wait time, travel time, and other relevant metrics. The agreement should affirm the service area, including its geographic bounds for origins and destinations, and identify whether the service is exclusive to employees of the employers or if other eligibility conditions are in place.

Additionally, the funding agreement should establish performance metrics that the service provider(s) will adhere to. These metrics should include ridership, safety, maintenance, accessibility, missed trips, and on-time performance. The agreement should indicate what penalties are assessed if performance is not met by the provider.

Critically, the agreement must establish the breakdown of costs between the employer(s), the service provider(s), and/or the public agencies entering into the agreement, the duration of this cost-sharing agreement, and conditions under which costs can be reevaluated or renegotiated. A Not-To-Exceed (NTE) total cost amount may be established to prevent cost overruns.

Case Studies

The Dallas Area Rapid Transit Authority (DART) maintains an Interlocal Agreement (ILA) program for establishing transit service within specific geographic areas. DART has used these ILAs with municipalities that are not currently served by transit as well as private sector entities. The agreements have been used to establish service at a wide array of trip generators, including warehouses, to provide fixed-route and demand-response service under specific conditions.

These agreements leverage a DART policy known as the Site-Specific Shuttle Service policy that establishes a 50% service cost commitment from partner agencies.⁶ The policy also establishes minimum requirements for a funding agreement, including the service route and schedule, the proposed service quality standards and a methodology for the service provider or contractor to meet those standards, and a statement demonstrating how accessibility for people with disabilities and other mobility challenges will be provided under the service.

The policy and the agreement establish transparency in service provision and administration and build more stable and predictable frameworks for operating services. The agreements also enable more flexible and modular service extensions while controlling service costs and maintaining compliance with Federal and State regulations.

⁶ Dickerson, Dan. "Medical City Dallas Site-Specific Shuttle Agreement." Presentation to DART Board. 6 July 2021. <https://www.dart.org/about/board/boardagendas/planningitem3_06jul21.pdf>