



EMAIL – trevor.findley@clevorgroup.com
PHONE – (503) 609-0204

SUMMARY

Mr. Findley has over 18 years of experience as a Project Manager and Solutions Architect in the design and implementation of electronic payment systems. He is an industry expert in transport fare collection and specializes in the development and delivery of real-time payment processing solutions that integrate emerging payment technologies with enterprise-class financial management tools and applications. Mr. Findley is one of the founders of Clevor Consulting Group, a boutique consulting firm focused on bringing unparalleled technical talent to the transport industry. As a principal with the firm, Mr. Findley helps transport agencies understand and adapt to the world of electronic payments, while providing the knowledge and resources necessary to deliver truly innovative fare collection solutions.

PROJECT EXPERIENCE

- 2021 – Present **PRESTO Procurement Advisory Services, Metrolinx, Toronto, OR**
Metrolinx is currently underway with a procurement to replace the PRESTO fare payment system, which first launched in 2009, and currently supports electronic revenue collection for eleven transit agencies across the Greater Toronto and Hamilton Area (GTHA) and Ottawa. Mr. Findley led the requirements capture process and technical specification development for the Automated Fare Collection Solution (AFCS), which includes a true open architecture design, real-time transaction processing, a variety of closed-loop (e.g., physical and virtual transit cards) and open-loop payment options, and fully integrated, enterprise-class CRM and financial management applications. Mr. Findley has supported Metrolinx throughout the procurement and negotiations process, and led development of the plan for transitioning both transit agencies and customers to the new solution, including migration of all legacy devices, fare media, and data.
- 2021 – Present **Key 2.0 Fare Payment System Design and Procurement, Southeastern Pennsylvania Transportation Authority (SEPTA), Philadelphia, PA**
SEPTA is in the process of procuring a new solution to replace their Key fare payment system, first launched in 2016. The program includes replacement of not only the core system, used for transit fare payment, but also building access and parking payment solutions, as well as a variety of third-party devices and back-office integrations. Mr. Findley oversaw development of the Concept of Operations, setting the overall vision and strategy for the program, while also leading the agency and consulting team in development of the technical specifications for all components of the new solution. Mr. Findley is currently supporting SEPTA in the evaluation and selection process for the core system, and will provide ongoing support in the procurement of additional components and services necessary for delivery of a comprehensive solution.
- 2019 – Present **Automated Fare Collection (AFC) 2.0 Implementation, Massachusetts Bay Transportation Authority (MBTA), Boston, MA**
MBTA is in the process of replacing its aging CharlieCard fare collection system with a modern, account-based solution that will allow customers to pay fares using contactless bank cards, agency-branded smartcards, and mobile wallets supporting both open-loop and virtual transit card

payments. Mr. Findley is the Fare Collection Technology Lead for the program, leading the consulting team through all technical design and implementation tasks. Mr. Findley is also leading the program's fare revenue assurance activities, supporting MBTA finance staff in developing the accounting and auditing processes for the future system.

2017 – 2020 **SmarTrip® Virtual Card and Fare System Strategy, Washington Metropolitan Area Transit Authority (WMATA), Washington, DC**

As of 2020, WMATA's SmarTrip® smartcard fare payment system was over 20 years old – one of the first and oldest in North America. Mr. Findley assisted WMATA in the design and implementation of a solution that enabled mobile wallet-based virtual transit card payments, as an initial step towards fare modernization. Additionally, Mr. Findley was brought in as a strategic advisor to help WMATA identify and prioritize the work needed to keep the current system operating (i.e., maintain a state of good repair), while developing a near- and long-term plan for introduction of innovative technologies. The Strategic Plan authored by Mr. Findley structured procurement and delivery activities over a 10+ year period to facilitate the incremental introduction of modern payment technology without disruption to ongoing operations.

2016 – Present **Next-Generation ORCA Fare Payment System, Sound Transit, Seattle, WA**

Similar to the Bay Area's Clipper system, ORCA is a true regional fare collection system, supporting fare payment across nine transport agencies serving the greater Seattle region. While successful, the original system was first launched in 2009, and showing its age. Mr. Findley served as a strategic and technical advisor for the system replacement project, where he supported the system design and technical specification development. Mr. Findley also developed the complex transition strategy for the migration of agency operations and existing customers to the new solution.

2014 – 2018 **OMNY, New York Metropolitan Transportation Authority (MTA), New York, NY**

With over 8M riders per day across all partner agencies, this project to overhaul the fare collection solution for North America's largest transit agency was a massive undertaking. The project required migration from legacy magnetic stripe media to a modern account-based payment platform, and included the replacement of equipment and new network infrastructure in 427 subway stations and on over 5,800 transit vehicles. Mr. Findley served as Technical Lead and Project Manager for the technical consulting team, where he worked with the MTA and the partner agencies to design a next-generation, account-based fare collection system that will allow New York residents and visitors to pay fares using contactless bankcards, agency-branded smartcards, and mobile wallets supporting both open-loop and virtual transit card payments. Mr. Findley supported the agencies in this role throughout the complex procurement process, contract award, and the initial phases of system design review.

2013 – Present **HOLO Fare Payment System, City and County of Honolulu, Honolulu, HI**

The City and County of Honolulu, Honolulu Authority for Rapid Transportation, and Oahu Transit Services successfully delivered a modern account-based electronic payment solution that supports fare payment for bus, rail, and paratransit services across the entire island of Oahu. As the Project Manager and System Architect, Mr. Findley saw the project from inception through implementation, helping to define the strategic direction, authoring the functional and technical requirements, supporting the procurement process, and overseeing vendor design and delivery.

2012 – Present **Hop Fastpass® Fare Payment System, TriMet, Portland, OR**

The first truly open architecture system of its type, the Hop Fastpass system used a common set of agency-controlled APIs to integrate equipment and back-office solutions from over ten different vendors. As the System Architect, Mr. Findley was instrumental in defining the strategic direction of

the project, and in the planning phase, assisted TriMet and the partner agencies in identifying system needs, making key technology decisions, and developing a concept of operations. Following award, Mr. Findley collaborated with the selected vendors to design and implement core elements of the system, such as the real-time fare calculation engine, fare capping algorithm, and financial accounting integration, and oversaw all vendor integration efforts. Mr. Findley worked with TriMet to be the first U.S. transport agency to launch closed-loop mobile wallet (i.e., virtual transit card) payments for both Apple Pay and Google Pay.

- 2012 – Present **Ventra™ Fare Payment System, Chicago Transit Authority (CTA), Chicago, IL**
 The Ventra™ fare collection system was the first account-based, open payment system delivered for a major transit agency in the United States. The system, which supports the payment of fares on buses and rail using contactless bank cards, mobile wallets, and agency-branded transit cards, was designed and deployed in under two years. Mr. Findley was brought on as the Implementation Manager following award of the Design-Build-Operate-Maintain (DBOM) contract to the fare system vendor. Mr. Findley oversaw the system implementation from initial design through public launch, and led a team of agency staff and consultants through all phases of system design, technical development, and functional validation. Mr. Findley continues to support CTA in their ongoing migration of the system to a true open architecture solution.
- 2005 – Present **Clipper® Fare Payment System, Metropolitan Transportation Commission (MTC), San Francisco, CA**
 The Clipper® fare payment system provides seamless fare payment across 22 transit agencies serving the San Francisco Bay Area. The system first launched in 2005, and is easily one of the most ambitious ever implemented, with seven modes of transport; flat fare, distance-based, and zone-based payment; over 4,000 unique fares, 100+ fare products, and 12,000 recognized transfer combinations; and multi-agency fare capping. Mr. Findley started on the project in 2005 as the Technical Lead, and went on to become the Project Manager, overseeing the system implementation on all seven major transport operators serving the city of San Francisco. He has continued to lead major system upgrades over the years, ensuring the ongoing operation and evolution of the now 18-year-old system.

PROFESSIONAL ACCOMPLISHMENTS

- 2017 **Founded Clevor Consulting Group**
- 2014 **Selected as one of Mass Transit Magazine’s “Top 40 Under 40” transit professionals**
- 2014 **CEO Excellence Award for Chicago Ventra project (highest honor at CH2M)**
- 2011 **Nominated Chairperson of Booz Allen Hamilton’s San Francisco Workforce Leadership Council**

WORK HISTORY

- 2017 – Present **Principal, Clevor Consulting Group**
 In 2017, Mr. Findley founded Clevor Consulting Group. The motivation behind the move was to establish a firm that recognizes the need to acquire diverse technical talent to help transport agencies navigate the complex world of electronic payments and bring innovative solutions to their customers.
- 2011 – 2018 **Senior Program Manager, CH2M HILL**

When CH2M acquired Booz Allen Hamilton's transportation technology practice, Mr. Findley made the transition and brought along the projects he was supporting at the time. Over the next six years, this portfolio grew as Mr. Findley was recognized as an industry leader in transport fare collection.

2005 – 2011

Lead Associate, Booz Allen Hamilton

Mr. Findley began his career in electronic payment systems as the Technical Lead on the San Francisco Clipper project. Over his six years with the firm, his role grew to manage some of the largest projects in Booz Allen's fare collection practice.

2002 – 2005

Embedded Systems Design Engineer, ESI Electronic Products Corporation

Mr. Findley led projects involving the custom hardware and software design of embedded systems used in exercise equipment and other consumer products. He was responsible for the complete development cycle of these products, from conception through production release and support.

EDUCATION

2002

B.S., Electrical Engineering, Worcester Polytechnic Institute, Worcester, MA

Mr. Findley studied Electrical and Computer Engineering, focusing on both hardware and software design, and minored in Management of Information Systems (MIS). He studied in both Switzerland and Ireland, and graduated with High Honors.