Profile: Tillamook County Transportation District

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The Tillamook County Transportation District and the Northwest Oregon Transit Alliance have had considerable successes implementing technology. This report attempts to identify the factors that have supported these successes. The Oregon Department of Transportation can consider these examples when developing plans for strategic support for transit agencies.

Context

As Oregon increases its investments in small and rural transit services, the organizations providing those services face a complex array of options for technology solutions to help them grow. In 2019 and 2020, the Oregon Department of Transportation (ODOT) contracted with Full Path Transit Technology (Full Path) to provide assessments of selected service providers' use of and plans for technology. Each assessment was intended to guide decision-making about the procurement and implementation of technology. With the exception of vehicle propulsion technologies, Full Path considered all aspects of transit operations, from fleet management and dispatching to rider-facing applications, and provided recommendations that took into account current conditions and agency priorities.

In the course of a technology assessment for the Tillamook County Transportation District (TCTD), Full Path noted that TCTD had good systems and tools in place, to the extent that there was simply not a lot of advice that Full Path could offer. Among the agencies that received assessments from Full Path, TCTD emerged as an outlier in terms of its ability to navigate the challenges of incorporating technology into a small transit agency's operations. This profile is an attempt to enumerate the reasons for TCTD's success and offer recommendations to ODOT about how to help other agencies in the state achieve similar successes.

TCTD is a founding member of the five-agency Northwest Oregon Transit Alliance (NWOTA). The alliance members coordinate their work closely, and some of that coordination has involved shared technology projects. Accordingly, this profile includes information about NWOTA's history, operations, and technology use, as well as related recommendations to ODOT regarding the potential expansion of NWOTA and the formation of similar regional networks.

In 2021, Kevin Chambers of Full Path conducted interviews with the following individuals to create this profile:

- Doug Pilant, General Manager, TCTD (also interviewed in 2019)
- Cathy Bond, NW Rides Brokerage Manager, TCTD

- Jeff Hazen, Executive Director, Sunset Empire Transportation District
- Cynda Bruce, Program Director, Lincoln County Transit
- Bradley Dillingham, Special and Rural Transportation Coordinator at the City of Corvallis on behalf of Benton Area Transit
- Carole Richardson, PE, Principal, Plangineering, LLC (formerly of David Evans and Associates)

In 2020, Full Path also wrote a white paper for the National Center for Applied Transit Technology, entitled *A Framework for Making Successful Technology Decisions*. One of this framework's core concepts is systems thinking, "a school of thought that focuses on recognizing the interconnections between the parts of a system and synthesizing them into a unified view of the whole."[1] Systems thinking is evident in TCTD's operations and in NWOTA's formation and ongoing work, in ways that provide real-life examples of best practices.

TCTD Overview

Operations and Staffing

TCTD offers general public dial-a-ride and local deviated fixed route services on four lines within Tillamook County, as well as three fixed-route intercity/commuter bus services outside the county. Since 2018, TCTD has also operated the NW Rides non-emergent medical transport (NEMT) brokerage for Clatsop, Columbia, and Tillamook Counties. In December 2019, Doug described TCTD's ridership as approximately 1,000 dial-a-ride trips per month and about 750 NEMT trips per month. The agency has a staff of 56 people, and its fleet consists of 32 vehicles: eleven dial-a-ride vans, two small dial-a-ride buses, six low-floor buses for local fixed-route services in Tillamook, and thirteen 35-foot cutaway buses used for intercity and commuter services.

Technologies Past and Present

Currently, TCTD uses Ecolane for dial-a-ride scheduling, NEMT scheduling, an in-house application called Transit Ace for fixed-route passenger count data, Swiftly for real-time vehicle tracking, and Fleet Maintenance Pro for fleet management.

TCTD previously used RouteMatch for dial-a-ride scheduling. When Doug assumed his current role as General Manager in 2012, he implemented Transit Ace, a management information system and scheduling software. (At another agency, Doug worked with a software developer to create Transit Ace.) In developing TCTD's version of Transit Ace, Doug was able to draw on his exposure to software systems developed by RouteMatch, Mobilitat, Trapeze, and others. Within

[1] Daniel H. Kim, "Introduction to Systems Thinking", available at: https://thesystemsthinker.com/wp-content/uploads/2016/03/Introduction-to-Systems-Thinking-IMS013Epk.pdf

a few months of starting to use Transit Ace, TCTD had more than doubled the number of dial-a-ride trips it completed per month (from around 200 to 500 trips per month).

Due to the growth in the TCTD dial-a-ride program, it became clear by 2015 that Transit Ace was no longer meeting the agency's needs for dial-a-ride scheduling. After researching options from 2015 through 2017, Doug selected Ecolane, which was implemented in March 2018 to support TCTD's dial-a-ride services. Prior to implementation, Ecolane provided a (proprietary) risk assessment to TCTD that identified areas of concern. Part of Doug's response to this report was to reach out to other agencies so that TCTD could benefit from their knowledge and experience in addressing deficiencies in preparation.

A factor in choosing Ecolane was the product's ability to support the District's current dial-a-ride fare policy and programmability to change the dial-a-ride fare policy from a zone-based fare system to a mileage-based fare policy system. TCTD was seeking a solution to remove the current dial-a-ride policy that limited riders' ability to travel outside of a zone. (Multi-zone travel was only possible for medical trips.) TCTD wanted to shift to a mileage-based fare system eventually, which would allow county-wide travel via dial-a-ride. In 2020 and 2021, TCTD conducted a system-wide fare policy analysis. It then successfully implemented a mileage-based fare policy beginning July 1, 2021. Doug reports that the new policy has been widely embraced by TCTD riders and the percentage of multi-zone trips is increasing. Doug recognized that Ecolane had the ability to support mileage-based fares, and so the software was selected partly on this basis—even though the fare system was not changed for another four years.

Ecolane has become a highly valued vendor for TCTD. When TCTD took over management of the NEMT brokerage in 2018, TCTD worked with Ecolane on customizations that would support this functionality. TCTD is currently working with Ecolane on adding a deviated-fixed route module, which will involve using that technology for passenger counting as well as mileage-based fare collection.

A challenge with Ecolane is that the product can generate a multitude of data. At times, data overload is possible. Working with the results requires skills in data analysis and a willingness to work with Ecolane to produce reports that are meaningful.

Technology's Impact for TCTD: Data-Driven Decisions

TCTD's implementation of technology supports data gathering that informs decision-making.

For fixed-route service, drivers collect data on fare type manually. This information is entered into Transit Ace. On an ongoing basis, reports from Transit Ace allow TCTD to understand ridership and revenue patterns, so as to identify schedule adjustment opportunities.

Data also helped TCTD correct problems when deviated fixed-route service started to overextend service capacity. This problem was apparent because schedules weren't being met and drivers weren't able to take breaks. The service had essentially begun functioning like a demand-response service. TCTD shared Swiftly data reports with Trillium Solutions to better

understand the situation and then worked with Nelson/Nygaard to analyze the reports and correct the service imbalance.

Technology Leadership from Doug Pilant

TCTD General Manager Doug Pilant has had a 31-year career in public transit. He describes rural dial-a-ride service as his “passion”, citing it as an underused source of high-quality service in most rural areas. He also cited rural areas’ lack of appropriate technology limits the services’ potential impact. His colleagues note his patience and humility as key factors in his successful leadership, especially around technology. His leadership style recognizes that implementing new technology requires asking people to change their patterns and, to balance the effort that change requires, he introduces changes in a series of small steps. He keeps an eye on the big picture, which speaks to his skills as a systems thinker. For example, TCTD dispatchers and NW Rides brokerage staff attend regular training sessions held by Ecolane, sometimes reporting back that the substance of the training is not part of their daily work. However, Doug is able to visualize how TCTD might effectively adopt that practice in the future.

Doug has a particularly strong ability to organize data and measure what his agency is doing. Doug credits his skills to a constellation of opportunities available to him while working for the Mendocino (California) Transit Authority from 2001 to 2004. He cites a combination of mentorship, legal requirements, and formalized education as being the foundation for his distinctive, systems-driven management style. All three of these factors are tied to California’s Transportation Development Act of 1971 (TDA). The TDA itself is an example of systems thinking, in that it connects funding to operational data collection while also providing training and education in the analytical skills needed to understand operational data.

Data Literacy Driven by TDA Requirements

The TDA’s reporting requirements spurred the development of Doug’s data literacy. A brief background on the TDA’s structure is provided to give context for the causal relationship between the TDA and Doug’s skill development.

The TDA is funded through a 0.25% sales tax, with funds allocated by the state auditor to the state’s 44 regional transportation planning agencies (RTPAs). Depending on a local area’s population, metropolitan planning organizations (MPOs) or councils of governments (COGs) can act as RTPAs. Each RTPA determines what performance measures will be used by the transit agencies receiving TDA funds from the RTPA. Each RTPA is required to designate certain transit agencies as Consolidated Transit Service Agencies (CTSA). The designated CTSA works in partnership with the RTPA to establish a standard for each designated performance measure. For example, the TDA establishes that the farebox return ratio will be used as a performance measure for both rural and urban areas, while the RTPAs are responsible for establishing standards for each performance measure such as passengers per hour/mile,

working with the CTSAs to do so. RTPAs may set standards for rural transit agencies differently than for urban transit systems.

All agencies are required to report on their farebox return ratios and to hit targets tied to agency size. When an agency is not meeting a standard, the agency and the RTPA have a conversation about what can be done to address the deficiency. Because operating statistics were tied to this revenue source, Doug learned a great deal about collecting and understanding data.

Mentorship

At the Mendocino Transit Authority (MTA), Doug worked under General Manager Bruce Richard, who first earned a civil engineering degree at UC Davis and later completed an MBA in transit management at UC Berkeley. This MBA program was created through funding from the TDA.

Although Doug had a strong background in transit planning from prior work in Oregon, working with Bruce at MTA introduced Doug to a systems-level view of transit operations. “For the first time, I saw everything as a series of systems working together,” said Doug. This mentorship allowed Doug to see how to combine an engineering mindset geared toward creating systems, with a business mindset intent on tracking, measuring, and understanding the performance of those systems.

Formal Training

While his mentor when through TDA-funded MBA program, Doug benefited from other educational opportunities based in California. In 1990, he took a week-long transit operations planning course at the University of California–Irvine, where he learned about mathematical calculations to use in predicting transit demand.

Aspects of the UC–Berkeley program were available in a two-week continuing education program run by Pepperdine University. ODOT funded Pepperdine’s delivery of this program for Oregon agencies, and Doug attended this training in 1999. The Pepperdine program transferred to Willamette University around 2002 or 2003 and ended there around 2008. At this time, the only comparable training program that Doug is aware of is via the Upper Great Plains Transit Institute at North Dakota State University (ugpti.org). UGPTI offerings include outreach to Native Nations to support transportation advancements as well as training through the Small Urban and Rural Center on Mobility (SURCOM), covering topics like business development, safety and security, and fundraising, among others. SURCOM offers an “Advanced Transit Professional” certification.

NWOTA Overview

NWOTA's five charter members are Benton Area Transit, Columbia County Rider, Lincoln County Transit, Sunset Empire Transportation District, and TCTD. Their combined service areas encompass Benton, Clatsop, Columbia, Lincoln, and Tillamook counties, while also providing connecting service to Linn, Marion, Multnomah, Polk, and Washington counties. Two NWOTA members, Lincoln County and Benton Area Transit, are also part of another network: Cascades West Transportation Options, a program of the Oregon Cascades West Council of Governments.

The alliance was formed in 2010 with $3.5 million in grant funding from the U.S. Department of Energy's Energy Efficiency and Conservation Block Grant Program General Innovation Fund. The five agencies jointly submitted this funding application, with guidance and leadership from David Evans and Associates, in an effort to promote seamless transit across their service areas. The overall goals of the grant-funded project were to create a coordination mechanism, regional routes and associated scheduling and stop improvements, shared marketing efforts, sustainable funding plans, and performance monitoring. The grant also involved an analysis of the effect of increasing transit use on decreasing carbon emissions. The 2016 *North by Northwest Connector Management Plan* provides a summary of the initial grant-funded goals as well as the future direction for the work.

Important elements in the formation of the network were an emphasis on complementing each other rather than competing, a clear visioning process, celebration of small successes, and support from ODOT.

Ongoing Benefits of NWOTA

A complete analysis of NWOTA's successes, challenges, and lessons is beyond the scope of this effort. However, it is worth noting that the leaders at these agencies value the network and each other. Communication, trust, respect, mutual support, and a lack of territoriality among these leaders were important to the formation of the network and to its continued success. In interviews with three other NWOTA network members, the value of the alliance is clear. Specific benefits include:

- Collegiality, professional mentoring, and access to complementary skills
- Marketing leverage
- Access to additional grants
- Sharing of tangible items, such as cleaning supplies

Most notably for this report, the alliance has also undertaken successful projects to align their technology platforms. For example, three agencies are using Swiftly, and three are using Token Transit. For TCTD, the adoption of Token Transit is pending; implementing the new mileage-based fare policy and adding the deviated-fixed route module to Ecolane need to be in place first. After hearing about the successful implementations of Token Transit for SETD, Lincoln County, and Benton Area Transit, TCTD will implement Token Transit by mid-2022. Benton

Area Transit and Columbia County Rider have at least looked into using Swiftly and may have made related decisions.

Ecolane within NEMT Brokerage

TCTD was the first agency within the NWOTA network to adopt Ecolane. Over time, two other agencies have adopted this software, with TCTD's assistance. With Ecolane's permission, TCTD has added both Sunset Empire Transportation District (SETD) and, more recently, Columbia County as authorized users to its license. TCTD's legal counsel has developed a formula to determine the other agencies' contribution to licensing and annual maintenance fees. TCTD's Cathy Bond, who manages the brokerage, has become extremely well versed in Ecolane. She provided training for the other agencies when they first adopted Ecolane; Doug considers the cost of Cathy's time to provide this training to be negligible.

As a result of having these three agencies using not just the same product but an instance of the product with shared licenses, all information is stored in a single database for NEMT trips and dial-a-ride. On the NEMT side, this greatly increases the ease of reporting to Care Oregon on the NEMT brokerage activities. Another benefit of sharing Ecolane is that TCTD, SETD, and CC Rider share the same client database. This enables seamless and instantaneous communication between NW Rides and the three agencies' dial-a-ride and paratransit programs. This is important since NW Rides clients are also clients of each agency's respective individual on-demand services.

Doug also saw Ecolane as a tool that would help other agencies increase their NEMT services and associated revenue. After Ecolane's implementation, SETD has grown that part of its operations from 35 rides per day to 50 rides per day. CC Rider's use of Ecolane is relatively recent. According to Doug, using Ecolane has enabled CC Rider to implement their own county-wide mileage-based dial-a-ride service. This change has increased dial-a-ride availability and the number of trips taken has increased by approximately 50% since the mileage-based program was rolled out. According to a minor survey by Regional Transit Coordinator Arla Miller, TCTD and CC Rider are the only agencies in Oregon and Washington to offer mileage-based dial-a-ride service.

Ecolane's ability to support mileage-based fares for dial-a-ride has also allowed Columbia County to develop its own mileage-based fare program. TCTD and CC Rider calculate their mileage-based fares differently, but Ecolane can handle these variations.

Website and Trip Planner

The public face of the NWOTA partnership is its website, nworegontransit.org. A central function of the site is its trip planner, which helps visitors to the Oregon coast create travel itineraries using transit while also supporting local residents in trip planning. As Doug puts it, "the website gives all of us the opportunity to think outside our borders, or our areas of jurisdiction… It's a service interface to help facilitate the ease of using transit." Jeff Hazen of SETD says, "The website has been pivotal to bringing the alliance together."

Due to communications issues between the developer and Google, the first version of the trip planner was not a success. With the current (second) version, an important piece fell into place: engaging Trillium Solutions as the developer. Thanks to the contract that Trillium has with ODOT to manage GTFS data, Trillium was able to coordinate with Google in a way that the previous contractor was not. Recent funding from ODOT to TCTD on NWOTA's behalf allowed the alliance to upgrade its trip planner. Google Maps, which limits trip planning to no more than 60 days into the future, was replaced by the OpenTripPlanner, which has no such limit. The new planner also supports the "flex" extension to the GTFS data standard, which allows NWOTA agencies to load the system with not just their fixed routes, but their demand-responsive services as well. This, in turn, allows users to see what on-demand transit services are available to complete the first or last mile of their trips. Since implementation, TCTD has had several first/last mile trips scheduled by various people (such as hikers and campers) to get to locations not served well by fixed-route transit.

Next Steps for NWOTA

NWOTA's success raises questions about how its impact can be deepened. According to the four general managers interviewed, possible avenues include options such as these:

- Existing members could increase the seamlessness of services even more.
- Existing members could provide additional services.
- New members in adjacent areas could join.
- Other agencies in different regions could replicate their model.

This report is not intended to evaluate these possibilities. However, it is worth noting that these questions are present in the minds of the NWOTA leadership, with varying degrees of interest in expansion. No one expressed interest in consolidation under a single agency. As Doug put it, the closest version of consolidation he foresees would be unified use of the same technology across all members. At the present time, the members see the benefits of using the same applications, while also following the adoption timelines that make sense for them.

Conclusion: Opportunities for ODOT

Based on the success of TCTD and NWOTA in incorporating technology into operations, Full Path recommends that ODOT consider supporting the growth and development of the state's transit providers in the following ways:

- Creating or reviving training programs that emphasize systems thinking and data analysis, such as the Pepperdine/Willamette University program of the late 1990s/early 2000s and/or facilitating access to training currently available through SURCOM
- Building systems of support that incorporate funding, data collection, and the training that is necessary to understand data collection and analysis

- Promoting and funding succession planning, so that leadership transitions don't scuttle progress in using and planning for technology
- Helping new regional networks form while also supporting the ongoing work of existing networks *and* taking the needs of "overlap agencies" (i.e., those that are members of more than one regional network) into account

A large share of the successes enjoyed by TCTD and NWOTA can and should be credited to the hard work and unique leadership qualities of each of the individuals at their respective agencies. Effectively supporting those successes and identifying the conditions that increase the likelihood of more success in the future is a key focus of this profile. ODOT cannot clone current leadership, but it can work to foster conditions that have been found to be strong positive influences on those that are leading Oregon's transit industry today.