A knowledge-sharing report to help RTD find better ways to serve the public.

Best Practices

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RTD
Thanks for riding RTD
Keep this ticket as proof of payment.
For Light Rail: No validation required.
For Bus: Hand to Operator.

Executive Summary

From the General Manager

I am proud to present the first RTD Best Practices report. We at RTD recognize that our most important initiatives, projects and processes happen because of the efforts of individual employees who set out to make our organization better and provide safer, cleaner, more reliable, courteous, accessible and cost effective service for the citizens of the District. The best practices contained in this report highlight their efforts, and show how they have made RTD a regional and national leader in the transportation industry.

RTD has worked hard to create an organizational culture that encourages employees to come up with new solutions to complicated challenges. RTD's leaders have encouraged employees to take risks, they have taken responsibility for failures, and they have ensured that staff members receive the credit when a project goes well. Creating a culture of risk-taking in a large, mature organization is no small feat: organizations are quick to point fingers when a project goes badly, but that culture of blame stifles innovation. At RTD, we have tried to overcome the tendency to look for an individual to blame when something goes wrong, accepting that mistakes are a necessary part of big projects. It is only by learning from our mistakes that we can become an outstanding organization.

The best practices on partnering show that RTD innovates not only by reflecting on our own successes and failures, but by looking to the outside as well. In order to be a leader in the transportation industry, we must continually be aware of changing conditions in the industry, the transit marketplace, and the region we serve. We have looked to partners for solutions repeatedly, involving the private sector in a first-in-the-U.S. public transit DBFOM public-private partnership (P3), working with local educational institutions to create a groundbreaking workforce development program, and partnering with municipalities to finance an award-winning transit hub in downtown Denver.

As highlighted in the Multi-Agency Exchange (MAX) Program best practice, RTD has a tradition of sharing best practices and lessons learned with our peers. I believe that knowledge sharing is a key to improving transit nationwide. Only by reflecting on and sharing both our successes and the lessons we have learned can we move forward as an industry. It is my hope that our peers in the transit industry and beyond can learn from these best practices and implement similar programs in their home agencies where appropriate.

In the long-term, I hope this document will be the start of a new tool for sharing best practices across the transit industry, not just at RTD. We intend to expand this collection into a searchable, Wikipedia-style compendium of best practices. If many agencies participate, we will be able to learn from each other and inspire the next generation of transit professionals to make the industry better.

I am confident as I execute my transition from RTD that I leave the organization in good hands and all existing programs are fundamentally sound and moving in the right direction. This report and these best practices are a wonderful example of the entrepreneurial culture that we have created here at RTD, where people are always seeking continuous improvement and where failure is never an option.

Sincerely,

Phillip A. Washington

April, 2015

Purpose of the Best Practice Initiative

With the impending retirement of the baby boom generation, the transit industry must find pathways for critical practitioners to pass their knowledge, experience and strategies to the next generation of transit professionals. In order to address that challenge, RTD has collected internal knowledge to develop this compendium of RTD best practices for employees and managers of RTD, both now and in the future. It is our hope that this report will encourage collaboration and communication across the agency, allowing individuals from every department insights into their colleagues' most significant accomplishments. This effort to identify and promote best practices across the organization is intended to bolster successful strategies at RTD and encourage new thinking to overcome challenges: employees will be able to draw from best practices from other departments to address issues in their own work groups.

Peer transit agencies across the nation and world have expressed a great deal of interest in RTD's successes and lessons in project delivery, finance, security, workforce development and operations. RTD has developed this compilation of best practices to share with our peers as well as internally so our experience can inform not only our agency's next generation, but also the next generation of transportation professionals across the industry.

Findings

The best practices included in this report highlight RTD's strengths, while areas with fewer best practices bring to light opportunities that the organization can build on in future years. The many best practices related to partnering, processes, and workforce development reveal that RTD has fostered a culture of innovation, particularly with respect to external-facing initiatives, process improvements, and managing an evolving workforce of contractors and in-house staff. RTD truly is a regional and national leader in each of these areas. At the same time, RTD has made gradual progress in breaking down antiquated silos and improving collaboration and communication across departments and work groups.

Aside from a few important examples of projects done right, RTD continues to struggle to find the right way to incorporate technology into the agency's operations. Using technology to improve the customer experience and increase efficiencies will be an important challenge in the coming years: the RTD Board has selected technology projects – particularly ensuring that RTD has a technology infrastructure that we can build on and disseminating real-time information – as one of five key goals for the agency in 2015.

Methodology

The Best Practices program began with senior managers and leadership but also incorporates feedback from mid-level managers and practitioners to capture successes and opportunities at every level of the organization. During the first phase in collection, RTD's planning/policy analysis staff used a facilitated approach to establish the scope of the effort and direct the development of best practices. Policy analysis staff worked with each department's leadership to identify focus groups that participated in brainstorming sessions. Through discussion and directed questions, the facilitators and participants developed a high-level list of best practices within each Department. In a follow-up session with Assistant General Managers and Senior Managers, each practice was assigned one or more appropriate subject-matter experts. Policy analysis staff then conducted in-depth interviews with these subject-matter experts and background research to inform each short, Wikipedia-style description of each practice, which appear below.

Organization of this Report

RTD's best practices are grouped into the following key categories, which are ordered in this report from the agency's greatest strengths to areas with opportunity for improvement:

- Partnering
- Process Improvement
- Workforce Development/Managing Contractors
- Internal Communication
- Using Technology as a Tool

Tabs highlighting each theme are provided at the edge of each page for easy navigation through the report.

Within each theme, best practices are ordered roughly following the order of the strategic budget plan prioritization system: safety-related initiatives appear first, followed by initiatives that led to financial savings or innovations, initiatives that increase reliability, etc. In addition, best practices that affect all of RTD or a large portion of the agency generally appear before those that affect a smaller segment of the organization.

A clickable table of contents provides easy access to introductory material, the first page of each theme, and individual best practices. Each discussion also includes clickable links to email subject-matter experts for more information.

How to Use this Report

The Best Practices report is intended for a general audience and requires no special knowledge of the transit industry. Links to more specialized resources and contact information for subject matter experts appear at the end of each best practice and may be relevant to more technical audiences.

RTD Board Members, External Stakeholders and Citizens of the District

The executive summary, executive introductory letter, and descriptions of each theme are likely to be of particular interest to these readers. Consider perusing the table of contents for best practices relevant to your area(s) of interest.

Managers & Executives of RTD

Best practices are categorized into themes with RTD's managers and executives in mind: each of the themes may be of interest to managers who are trying to solve a particular, related problem. Managers may be able to identify practices from other divisions or departments that could inform strategies within their own departments. To that end, managers may want to read all of the best practices within an entire theme at once. The clickable table of contents also provides access to specific best practices that may be of interest to RTD management.

Peer Agencies

Like RTD managers, employees of peer transit agencies may want to explore one theme deeply depending on areas of opportunity at their own organization.

New Employees

New employees who would like a general overview of RTD's strengths and an introduction to who does what may want to explore this report. New employees may want to pay special attention to the names and contact information of subject matter experts included at the end of each best practice. Those subject matter experts may be potential collaborators on new projects.

Partnering

RTD's reputation as a forward-thinking transit agency is largely due to innovative partnerships forged over years. RTD has repeatedly leveraged resources from the private sector, exchanged knowledge with other government agencies, and fostered relationships with universities and non-profits to develop mutually beneficial projects. In many cases, those projects would never have gotten off the ground if the agency had worked alone.

Many of RTD's most exemplary projects and accomplishments have involved creative and intensive work with partners outside of the agency. From the transit industry's first public-private partnership to an historic transit hub made possible by working with local municipalities, RTD has looked outside for innovative solutions. RTD has addressed challenges as complex as workforce development and leadership training with an eye to the outside.

As the following collection of best practices indicates, RTD has been able to build these partnerships in part due to a long tradition of outreach to the private sector and transparency with the public and key stakeholders. Included in these best practices are frank discussions about finding the balance between internal interests and the desires of those stakeholders and partners. The following examples offer blueprints for transit agencies that want to build relationships with outside entities and leverage partnerships for the public good.

Goal

Accelerate construction of a large portion of the FasTracks rapid transit expansion.

Background

Beginning in 2007, declining sales and use tax revenues as a result of the Great Recession combined with worldwide demand for construction materials placed the financing of RTD's ambitious 140-mile FasTracks rapid transit expansion at risk.

At the same time, the Federal Transit Administration (FTA) initiated a Public-Private Partnership (P3) pilot program called Penta-P, which sought to explore how transit properties could partner with the private sector to reduce the burden on the Federal government and find new sources to finance and build transit projects. FTA included incentives in their New Starts Major Capital Investments funding program for transit properties willing to participate in Penta-P. In order to speed the delivery of the FasTracks program, RTD packaged two of its planned commuter rail corridors (the East Corridor and the Gold Line) and the necessary commuter rail maintenance facility into the East And Gold Line Enterprise (EAGLE P3) and applied to have the project be part of Penta-P. The application was accepted by FTA in 2007.

With acceptance into the Penta-P program, RTD moved quickly with development of the Eagle P3 Project. At the time, and to this day, few transit projects in the U.S. have used P3 for construction and none had included private financing. RTD had previously experimented with CDOT on the highly successful T-REX rail and road expansion project using a Design-Build (DB) approach. That method realized significant savings and also allowed RTD to complete the project ahead of schedule. Encouraged by this success, RTD was open to exploring new ways to get FasTracks completed.

Best Practice

The Eagle Project adds another layer of complexity not seen before in the delivery of transit projects in the U.S., adding a financing component to the contract (concession agreement) for a period of 34 years. Under this contract, RTD engaged Denver Transit Partners (DTP) to design, build, finance, operate, and maintain (DBFOM) the EAGLE project. Through the concession agreement, RTD retains ownership of all assets at all times, sets fares and fare policies, and keeps all project revenues. RTD will make payments to the private sector "concessionaire" based upon whether the service is accessible and on-time for the contract-defined periods and schedule (availability payments). RTD contributions to the project include costs related to the acquisition of right of way, construction payments and service availability payments which will be made to the concessionaire over the 29-year operating term of the concession. The total cost of the Federal Full Funding Grant Agreement for the Eagle project is $2,043.1 million structured with a variety of local, federal and private grants, loans and equity:

- FTA New Starts Full Funding Grant Agreement – $1.03 billion, awarded 8/2011
- Private Activity Bonds – $396.1 million
- TIFIA loan – $280.0 million
- Other federal grants – $57 million
- RTD sales tax revenue – $128.1 million
- Revenue bond proceeds – $56.8 million
- Local/CDOT/other contributions – $40.3 million
- Equity – $54.3 million

By pursuing the Eagle P3, RTD was able to leverage federal grants as well as private equity and debt to address the financial shortfalls in the FasTracks financing plan and build the commuter rail projects years ahead of schedule. In addition, the DBFOM agreement spreads the cost of the project over a longer time period via the availability payment model, enabling RTD to avoid potential funding bottlenecks in the future.

Flexibility

Through the Eagle procurement, RTD offered flexibility and used competition between bid teams to drive down construction and operating costs on the proposals. To maximize flexibility, RTD did not mandate specific solutions through design specifications. Instead, the agency required that proposers meet performance and availability of service standards. This decision allowed bidders freedom to propose cost savings and innovative solutions while still focused on delivering the transportation infrastructure in the FasTracks plan.

RTD recognized that if the agency shared design or engineering innovations suggested by one private sector proposer with other proposers, there was no incentive for a team to offer innovations – they might view it as giving away competitive advantages. To alleviate this concern, RTD developed a confidential Alternative Technical Concept (ATC) process, allowing proposers to suggest changes to specific design and construction requirements confident that the information would not be shared with other proposers. Through the ATC process, RTD got a better, lower-cost design. Additionally, RTD informed proposers in the ATC agreement that RTD would retain ownership of all concepts from successful and unsuccessful proposers - meaning a great design or construction innovation from a proposer who was not selected could still be implemented by the winning proposer without incurring design costs.

Risk Transfer

Engaging the private sector through a DBFOM contract enables RTD to transfer financing risk, construction risk and operating risk to the private concessionaire. The structure of the agreement includes incentives for the concessionaire to adhere to the budget or the concessionaire loses money.

The DBFOM approach maximizes contractor innovation and participation as well. Over the 34-year contract featuring private financing, the concessionaire team has a long-term commitment to the project. That commitment means the concessionaire has every incentive to build a quality project that will be cost effective to operate and maintain.

Risk transfer is not only in one direction, however. The private sector concessionaire agrees to build the quality product because they will operate and maintain it for the long term of the contract. RTD takes on increased up-front costs (legal and advisory fees, etc.) and increased financing costs because private sector financing requires a higher return than RTD's traditional tax-exempt financing. RTD also hands over significant control of the day-to-day construction of the project.

RTD endeavored to address the reduction in project control by structuring the concession agreement to define how the service would be operated and included availability payment incentives to encourage the concessionaire to meet or exceed the requirements and assigning penalties to the concessionaire (in the form of reduced availability payments) for unsatisfactory performance.

RTD, as a public sector transportation provider, also spent considerable effort to ensure that the contract is properly worded to retain a high degree of control over crucial elements such as safety and training, operational standards, fares, and other items to ensure the private contractor provides transportation that meets the agency's standards and expectations, and provides seamless service to the public.

Results

In an age of uncertain infrastructure funding, the EAGLE P3 project has become a transit-industry best practice. The Federal government and peer agencies often seek out RTD for counsel on the development and procurement of public-private partnerships. In 2011, RTD conducted a Lessons Learned exercise on the DBFOM procurement to be open about the three-year development process and share the elements that worked well and also those that might be done better next time. RTD officials often note that public-private partnerships are not a cure-all for infrastructure project finance but an option to be considered early. Some projects will lend themselves to a P3 structure while others should be pursued through more traditional methods.

In October 2014, RTD and DTP were faced with an example of the risk transfer from the public agency to the private sector partner. An inspection of the already constructed Jersey Cutoff bridge near 43rd Avenue and Fox Street indicated it would not last the planned 60 years. Due to its future 29 years of operating and maintenance of the structure, DTP elected to demolish and reconstruct the span to ensure it met the 60-year life and also re-inspect all the bridges in the project. The private concessionaire (DTP) will bear all of the costs for demolition and reconstruction.

The EAGLE P3 project is scheduled to open in 2016, years ahead of schedule if not for participation in the Penta-P program and leveraging private sector resources through the DBFOM contract. Substantially due to the use of Alternative Technical Concepts that allowed the private sector to innovate, RTD saved over $300 million from its internal estimate and locked in that price through the concession agreement.

Resources

Testimony of Phillip A. Washington Before the Panel on Public-Private Partnerships of the House Committee on Transportation and Infrastructure. 5 March 2014

EAGLE P3 Concession Agreement

Eagle P3 Project Procurement Lessons Learned 2011

All Aboard! Implementing Transit Rail Public-Private Partnerships in the United States: Hudson-Bergen Light Rail (New Jersey, USA) and EAGLE P3 Commuter Rail (Colorado, USA), Gudgel and Wang

Departments

Capital Programs

Communications

General Counsel

Materials Management (Executive Office)

Planning

Contact(s)

- Richard Clarke, Assistant General Manager, Capital Programs
- Pauletta Tonilas, Sr. Manager, Public Relations and Public Information
- Marla Lien, General Counsel
- Brian Iacono, Senior Manager, Materials Management
- William Van Meter, Assistant General Manager, Planning

Goal

Partner with local governments to rehabilitate historic Denver Union Station and construct a multimodal transportation hub.

Background

In 2001, RTD purchased the Denver Union Station site including the historic station and surrounding 19.5 acres with assistance from the City and County of Denver (CCD), the Colorado Department of Transportation (CDOT) and the Denver Regional Council of Governments (DRCOG). RTD paid $49.75 million while DRCOG pledged $20 million in federal air quality traffic mitigation funds and CCD $10 million.

RTD and its partners envisioned the station as a multimodal transportation hub where light rail, commuter rail, Amtrak, buses, taxis, shuttles, bikes and pedestrians would all converge and the surrounding land could be redeveloped. The master planning process began in 2002 and continued for three years. The process featured substantial public and stakeholder involvement, including 125 public meetings and a 96-member Advisory Committee. In the early planning for the transportation elements of the project it became clear that the project would cost hundreds of millions of dollars.

Best Practice

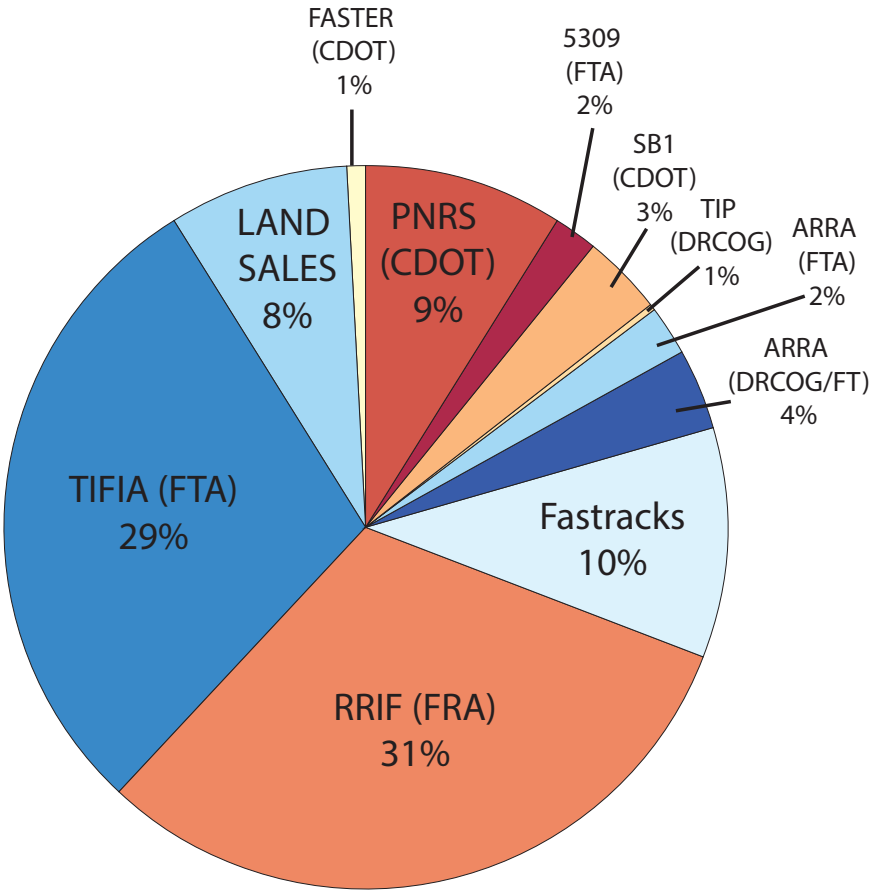
As the costs for the construction of the facilities approached $500 million, RTD and its partners recognized that they would need to develop a financial package of grants, loans and other sources to pay for the project. RTD's FasTracks sales and use tax receipts would not be enough to repay that amount of debt. Moreover, the scope of the project based on stakeholder input was beyond the scope authorized for RTD's use of FasTracks funds. The City and County of Denver offered to help repay the loans through the creation of a Tax-Increment Financing (TIF) district covering the 40-acre area. TIF is a method cities and counties can use to help finance projects by capturing the new (or incremental) taxes that are created when a property is redeveloped and property values increase. CCD created the Downtown Denver Authority as a special district to collect those taxes. The development around the station area would be crucial to repayment. In addition the Denver Union Station Metropolitan District was formed and a mill levy assessed for capital costs and maintenances of the portion of the development immediately around the historic station.

The partners also determined traditional tax-exempt bond financing would not be economically feasible. A different, low-interest financing structure would be required. RTD worked with the U.S. Department of Transportation to develop loans through two of their infrastructure financing tools that offer below-market interest rates to transit agencies. RTD worked with the Federal Highway Administration (FHWA) to secure a $145.6 million Transportation Infrastructure Finance and Innovation Act (TIFIA) loan and, simultaneously, a $155 million loan from the under-utilized Federal Railroad Administration (FRA) Railroad Rehabilitation and Improvement Finance (RRIF) program. It was the first time that a TIFIA and RRIF loan had been used for the same project and also the first RRIF loan for a transit project. CCD also agreed to pay the difference, or "backstop," the RRIF loan if either the FasTracks receipts or the TIF revenues came up short.

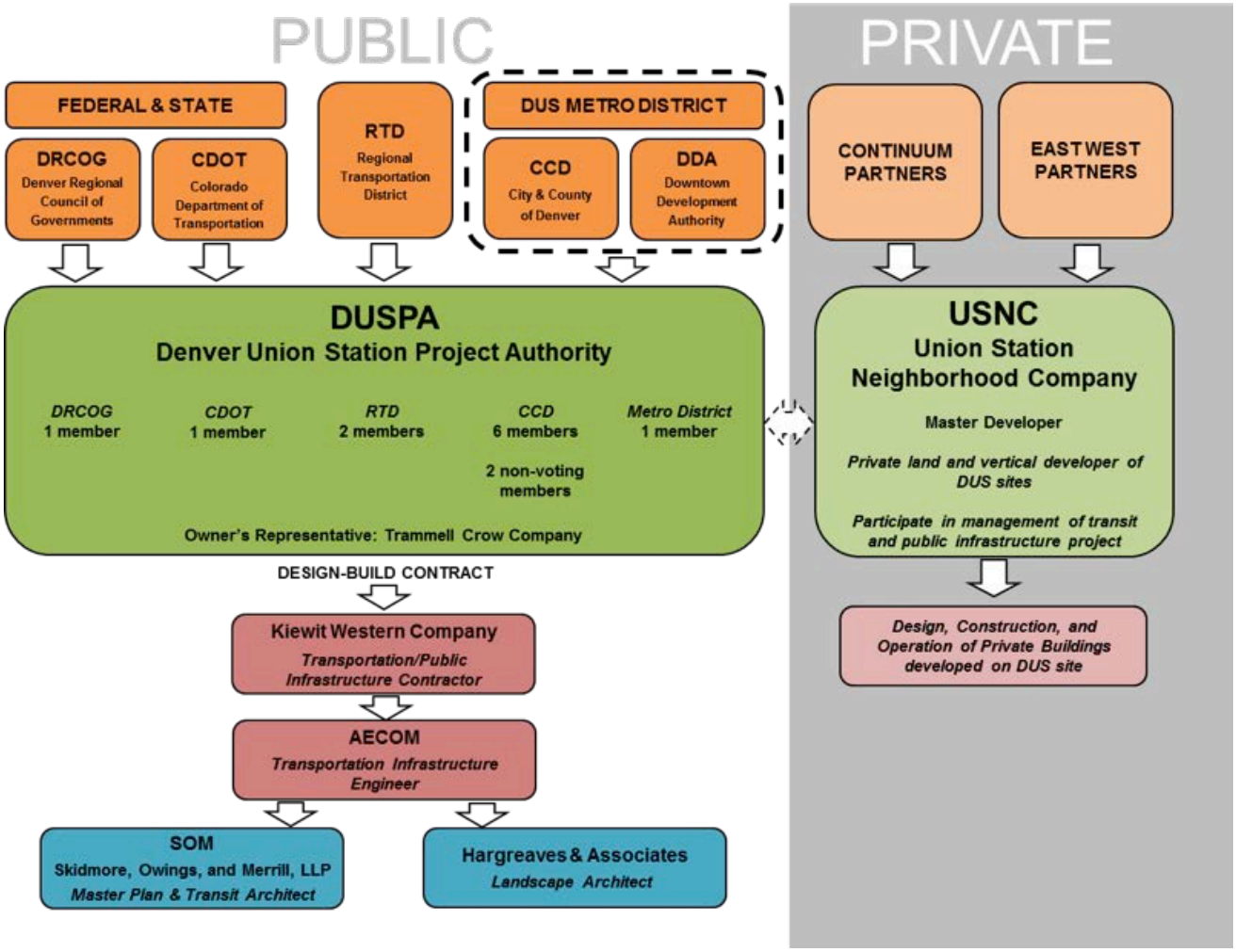
In the end, RTD and its partners at City and County of Denver were able to combine these revenue streams with grants from the FHWA and Federal Transit Administration (FTA) and the sale of the lands surrounding the station to leverage the two loans to fund the $484 million project:

Ongoing Revenue Sources		
Source	**Description**	**Amount**
RTD	Annual payment	$12.6 million/year
Denver	Limited Interest Backstop	Up to $9.3 million/year
Downtown Development Authority	Tax-increment revenue (property and sales) from 40-acre area;	Grows to $33 million/year by 2024
	Metro District covenant to levy 30 mills	

Development Sources		
Source	**Description**	**Amount**
USDOT/FHWA	TIFIA Loan	Up to $145,600,000
USDOT/FRA	RRIF Loan	Up to $155,000,000
FHWA	Federal Projects of Regional & National Significance Funds	$40 million upfront
FTA	Federal Funds (5309 and ARRA)	$42,000,000
RTD	Proceeds from sale of land to private developer	$38 million during construction period
CDOT	State Senate Bill 1 funds	$16.8 million upfront



This complex financing structure required the creation of the Denver Union Station Project Authority (DUSPA), a non-profit corporation organized to manage, finance and implement the Denver Union Station Project. All four partner agencies participate in the governance of DUSPA through board membership with the private partner:



Results

The Denver Union Station project was completed in 2014 with the Bus Concourse opening in May and the newly renovated station opening in July. RTD buses and Amtrak currently operate out of the facilities with commuter rail scheduled to begin operation in 2016.

The TIF financing arrangement has been tremendously successful – with more than $1 billion in development of the land around the station already completed or underway, revenues from this source are outpacing projections by 8 to 10 years or more.

Resources

Denver Union Station Lessons Learned 2015

Departments

General Counsel

Planning

Contact(s)

- Marla Lien, General Counsel
- William Van Meter, Assistant General Manager, Planning
- Bill Sirois, Senior Manager, Transit-Oriented Communities

Goal

Prepare participants to compete for future opportunities and share knowledge and strengthen contacts between RTD and peer agencies.

Background

In the past, transit employees both at RTD and at other agencies had limited opportunities to learn about the industry. In addition, ensuring that agencies exchange information at all levels – not just at the executive level – has been a challenge in the industry. Leadership programs at RTD and in the industry as a whole were especially limited for represented employees. By the early 2010s, RTD was simultaneously seeking ways to encourage professional development and foster leadership training for employees and share innovative ideas throughout the industry.

Best Practice

In 2012, RTD along with Dallas Area Rapid Transit (DART) and the Los Angeles County Metropolitan Transportation Authority (LA MTA) established the Multi-Agency Exchange (MAX) program, a collaborative, long-term, structured leadership development and learning exchange program. In 2014, the Metropolitan Atlanta Rapid Transit Authority (MARTA) joined the program. In order to gain the support of all three of the original agencies in the program, RTD's General Manager along with the General Managers of DART and LA MTA worked together to launch the program. RTD education, training and development staff followed up with one-on-one meetings both with internal stakeholders at RTD and leadership at DART and LA MTA. Early on, one agency that was a potential MAX participant agency expressed concern over losing staff to other agencies, and decided not to join the program for that reason. For the most part, however, the attitude towards the program was highly supportive. RTD volunteered to host the first MAX event.

One of the first challenges of the MAX program was setting up the logistics of the program: creating a scope, budgeting, determining how candidates would be selected, and recruiting a diverse candidate body were all key elements that needed to come together quickly on an ambitious launch schedule. In the interest of saving time, RTD training staff decided that Assistant General Managers (AGMs) should select candidates for MAX in the first year of the program. In the next two years, however, MAX candidates were required to be graduates of RTD's Leadership Academy program. Connecting the Leadership Academy to the MAX program laid the foundation for a highly developed strategic leadership development program with additional components.

The MAX program addresses best practices in both operation and support functions, and participants receive a broad overview of how an entire transit agency functions. In addition, MAX participants identify best practices to bring back to their home agencies, which allows for innovative ideas to percolate through all of the participating agencies.

In 2015, for the first time, MAX featured 90-minute break-out sessions, which allowed participants to explore an area in depth. For example, a break-out session on light rail operator training reviewed RTD's train operator recertification process and plans for a new light rail training simulation system. Other break-out sessions focused on safety and security and human capital. Using break-out sessions in conjunction with common experiences for all participants preserved the MAX program's benefit of allowing participants to see all aspects of a transit operation while encouraging deeper exploration of their interests.

In upcoming years, RTD will increasingly integrate MAX with other leadership development programs: the Leadership Academy; Departmental Leadership Training; Mentoring Program; and Expanded Training Programs. Together, these programs constitute RTD's Strategic Leadership Development Program. In addition, RTD's education, training and development department intends to create a regular issue-specific conference for MAX alums. The conference will focus on hot issues in the industry, such as state of good repair or innovative financing for transit projects.

Results

MAX has helped prepare future transit leaders to manage critical challenges in the transit industry and to ensure continuity in meeting current and future public transit needs. At RTD, 18 employees have successfully completed the MAX program so far, after 3 years. Three MAX participants have been accepted into Leadership APTA, and six RTD participants were promoted after completing the program.

MAX has sparked innovative ideas from the participants, who have learned and championed implementation of new projects in their home agencies. For example, Bob Grado, RTD's Transit Police Commander, entered the MAX program with a series of questions to ask counterparts at other agencies. One of his goals for RTD had been to obtain a smartphone app that would allow transit riders to report incidents to transit security easily, anonymously and inconspicuously. Grado had researched transit security apps and found that they typically cost approximately $400,000. Through the connections he made in the MAX program, Grado learned that LA MTA had obtained a transit security app at a comparatively affordable price through one of their part-time security officers who also owned a company that develops apps. In addition, the company was willing to provide the app at an attractive price (under $90,000) to RTD. As a result, Grado was able to purchase and implement the app within a few months, and RTD is now receiving information from passengers through the Transit Watch app.

Resources

2014 MAX Annual Report

Departments

Human Resources (Finance & Administration)

Contact(s)

- Cherie Sprague, Senior Human Resources Executive
- George Kuzirian, Manager, Education Training & Development
- Richard Petty, Senior Education Training & Development Specialist
- Bob Grado, Transit Police Commander

Goal

Create opportunities for metro Denver residents to attain and retain living wage careers in the transit and construction industries.

Background

In 2008 and 2009, even as Colorado slowly recovered from the Great Recession, RTD staff recognized that RTD and the transportation industry as a whole would soon face a labor shortage. In particular, FasTracks projects would require a large number of skilled and semi-skilled construction workers. Impending retirements in the transportation industry and a shortage of local workers who had the skills to build a major rail project like FasTracks concerned both RTD and consultants such as Denver Transit Partners (DTP), the contractor for RTD's Eagle commuter rail project. At the same time, the scale of the FasTracks program provided an opportunity to help people in local communities find employment and directly benefit from the construction and operation of new transit capital projects and other public transportation activities.

In 2010, RTD's new General Manager prioritized workforce development at RTD. In response, RTD developed a new program called the DRWI (Denver Regional Workforce Initiative) with two goals:

- Increase access to high-quality transportation jobs in underserved Denver-area neighborhoods, especially those affected by FasTracks construction
- Ensure that RTD and partner employers have access to skilled labor for construction projects, operations and maintenance

Along with Civil Rights staff, RTD's General Manager reached out to contacts in the Denver-area community, beginning with the Community College of Denver (CCD). CCD administrators were enthusiastic about developing training programs for prospective transportation-industry workers. RTD also reached out to other potential employers such as DTP as well as nonprofits in workforce development such as the Denver Urban League.

At the same time, RTD staff built support with labor unions and staffing agencies, both of which offered alternative pathways to careers in transportation. RTD reached out to all local labor unions, and coordinated with unions to ensure that new transportation workers would have access to the benefits of union membership. RTD successfully involved unions by actively reaching out and building individual relationships. RTD also involved staffing agencies as partners through a similar outreach effort.

In order to get the new program off the ground, RTD staff and partners targeted specific neighborhood networks. Denver's Park Hill was an early focus due to the socioeconomic profile of the neighborhood. In particular, Park Hill residents, as a whole, had low educational attainment and faced high unemployment, poverty, foreclosure, and crime rates. The neighborhood was also adjacent to the East Line, a commuter rail line that was soon to enter the construction phase and would provide ample job opportunities. RTD staff reached out to specific individuals and nonprofits in the Park Hill area that were already training residents. For example, the Bo Matthews Center for Excellence, a nonprofit located near Park Hill, was already training veterans for jobs in construction. Soon, those neighborhood leaders and nonprofits spread the word about the new RTD workforce development program to others in the community. Around the same time, RTD organized an event in Park Hill called the Denver Regional Workforce Initiative Community Call to Action where community leaders and workforce development professionals committed to supporting the new program.

Best Practice

RTD sees its capital construction projects as unique opportunities to prepare community residents for successful employment and ensure short-term job opportunities are transformed into long-term career pathways. As RTD and partners have moved forward with the WIN program, they have focused on five key goals: focusing on employer needs, building career pathways for participants, collaborating to broaden the impact of the program, emphasizing retention support, and inspiring positive community development.

In the three years since its founding, WIN has rapidly expanded its network of partner general contractors and small businesses. In order to expand the program, RTD staff has continued to network with potential partners. At the same time, partners who have had positive experiences with the WIN program have encouraged other potential partners to join WIN.

After successfully piloting WIN with its Eagle P3 project, RTD established a policy that inserts employment and training goals for local residents into the contract for each construction project. Building on the success of construction projects, RTD has also added WIN goals to other types of projects, such as an FTA-mandated before-and-after study of FasTracks lines.

By connecting education and skills development programs with integrated support services and on-the-job coaching, WIN bridges the gap between the skills individuals already have and the skills they need to succeed in careers. Services include career guidance, job training, career development coaching, and supportive services that enable metro residents to secure, retain and advance in transportation and construction jobs that pay a living wage. Employer services include recruitment and pre-screening, customized training, community outreach, and enhanced retention through on-going career coaching.

Results

In 2012, President Obama recognized RTD as a Transportation Innovators Champion of Change for the WIN program.

As of 2014, the WIN network includes 56 partners, both training organizations and employers, as well as labor union partners. WIN has signed memorandum of understanding (MOUs) with all of those partners. WIN enrolls 90 to 120 individuals annually, and the program has placed over 80% of participants, with an average starting wage of $16.25 per hour.

In the wake of RTD's success with WIN, other transportation agencies across the country are now creating their own WIN programs. In June, Boston's transit agency, the Massachusetts Bay Transportation Authority (MBTA) and the Massachusetts Department of Transportation launched its own workforce development program modeled on RTD's WIN program: MassWIN.

Resources

WIN Program FTA Close-Out Report

MassWIN

Departments

Civil Rights (Executive Office)

Contacts

- Martell Dyles, Manager, WIN Program

Goal

Encourage private sector innovation to benefit RTD projects.

Background

During and after the Great Recession, RTD was struggling to find funding to construct remaining FasTracks lines through traditional strategies. In addition, RTD was seeking innovative solutions to operations and technology challenges. In 2011, inspired by the Chicago Transit Authority (CTA)'s deal with Apple, which revitalized a Chicago El station, RTD's General Manager suggested a two-pronged effort to encourage private companies to provide solutions. The agency would simultaneously develop an unsolicited proposal policy and host a forum to educate private companies about RTD's challenges and opportunities and attract their interest. While RTD had a brief unsolicited proposal policy on the books, no proposals had ever come in under that policy, and the policy was not detailed or explicit about what types of proposals RTD would accept. Some RTD staff were skeptical about the feasibility of a forum and successful unsolicited proposal process, but once the planning process got underway, staff across many departments became increasingly involved and supportive of the effort.

Best Practice

Unsolicited Proposal Policy

To ensure that the agency would receive high-quality proposals and determine the best way to review them, representatives from RTD's Materials Management Division, Finance Department, Capital Programs Department and Legal Department worked together to develop an unsolicited proposal policy, along with advising from private sector consultants.

The policy specifically outlined the types of proposals that RTD would accept. RTD staff were careful to incorporate Federal Transit Administration (FTA) unsolicited proposal regulations into the policy, which has paid dividends for the agency and helped ensure that the policy would stand up to an FTA audit. The unsolicited proposal policy explicitly outlines the types of proposals that RTD will consider. RTD's policy includes specific language from FTA's Circular 4220.1F: Third Party Contracting Guidance. For example, according to FTA, an unsolicited proposal is:

1. Innovative and unique,
2. Independently originated and developed by the offeror,
3. Prepared without the recipient's supervision, endorsement, direction, or direct involvement,
4. Sufficiently detailed that its benefits in support of the recipient's mission and responsibilities are apparent,
5. Not an advance proposal for property or services that a recipient could acquire through competitive methods, and
6. Not an offer responding to a recipient's previously published expression of need or request for proposals. (FTA Circular 4220.1F: Third Party Contracting Guidance, p. 11,)

According to RTD's policy, an unsolicited proposal "must have the following qualities":

1.2.1 Innovative and unique;

1.2.2 Independently originated and developed by the proposer;

1.2.3 Prepared without RTD's supervision, endorsement, direction, or direct involvement; and

1.2.4 Sufficiently detailed that its benefits in support of RTD's mission and responsibilities are apparent.

An Unsolicited Proposal is distinguishable from a project which is already part of RTD's long-term budget planning process if it uses innovative and unique solutions to offer added value, such as enhanced financing options or materially advancing delivery dates. RTD does not consider sales tax bonds and certificates of participation are not unique and innovative financing tools. Following federal guidelines, RTD's unsolicited proposal policy also specifically excludes proposals regarding real property. (RTD Procurement Standards Manual VI-4: Unsolicited Proposals Policy)

RTD's unsolicited proposal policy is consistent across all projects and programs, whether or not they include federal funding sources. Making the policy consistent makes accounting easier and helps protect RTD in case of an audit. Adding this explicit language about the types of proposals that would be of interest to the agency was also intended to help reduce staff time spent reviewing irrelevant proposals.

In addition, RTD does not move immediately from a proposal to a contract. Rather, once RTD staff (including both procurement and subject matter experts) have reviewed a proposal, they decide whether to pursue the concept through a traditional RFP process or reject the proposal outright. If staff chooses to release an RFP, the original proposal must be formalized and resubmitted to meet the requirements of the competitive RFP process. At that point, other companies have an opportunity to compete.

Transformation through Transportation (T3) Industry Forum

In order to attract attention from private companies, RTD hosted an event in September 2011 to share information and solicit feedback from industry: the Transformation Through Transportation (T3) Industry Forum. At the T3 forum, staff explained to invitees from industry how to create competitive unsolicited proposals and avoid wasting staff time with unsolicited proposals that are irrelevant or unfeasible. The forum provided an opportunity for industry leaders to meet RTD decision-makers face-to-face and receive information about the agency's situation. The T3 took place at the Denver Athletic Club, a private club and venue in Downtown Denver, and lunch was provided for invitees. There was also ample time for mingling at a reception at the end of the day.

The intention of the T3 forum was to foster innovation by sharing the kind of information that would spark ideas from the private sector. The assumption was that the private sector would be able to leverage their knowledge of RTD to submit effective proposals for building out FasTracks as well as benefit the base system. The T3 program began with a series of introductory presentations from the Chairman of the RTD Board of Directors, Denver's Mayor, the President of Denver's Chamber of Commerce, and RTD's General Manager. But the day's centerpiece was a series of presentations from RTD staff, who described the organization's financial situation and operations and construction challenges. Staff made sure to share as much as possible about the organization's difficulties in order to give the attendees clear direction on the kinds

of proposals that would be most beneficial, and most likely to be accepted. Staff also specified what they did not want to see in proposals (for example, proposals for RTD's typical needs, such as diesel fuel).

RTD reached out to private sector companies across many different industries, rather than focusing on construction or traditional transit contractors. For example, the tech industry was heavily targeted in marketing materials for the T3. The event itself was intended to ensure that the private sector would both understand the types of proposals that RTD was interested in receiving and show that the agency was eager to work with private companies.

Results

RTD has accepted two unsolicited proposals for rail lines in the FasTracks system: the I-225 Rail Line and the North Metro Rail Line. In both cases, teams submitted proposals to accelerate construction of the lines within RTD's available financial capacity. In addition, receiving the proposals was an important political tool for RTD. Before the proposals were received, the staff and Board had not determined which FasTracks rail lines to build next. Once RTD received the proposal for I-225, staff and board members had a powerful argument for building that line next. When the proposal for North Metro came in, staff and board determined that would be the next line to be built based on the offer.

The built-in RFP process has ensured both FTA compliance and a good deal for RTD. In both the case of I-225 and North Metro, the teams submitted confidential unsolicited proposals that were deemed to have technical merit. In both cases, the proposals that RTD selected through the ensuing RFP process were more advantageous to RTD than the original unsolicited proposals.

In addition, the policy has become an industry procurement best practice because it simultaneously provides an opportunity for private sector innovation while ensuring that RTD complies with FTA policies. FTA has referred other transit agencies to RTD's unsolicited proposal policy. Some agencies that have unsolicited proposal policies that did not pass FTA audits have requested copies of the RTD policy at FTA's direction.

As of December 2014, RTD had rejected 28 of 30 unsolicited proposals that did not meet the requirements of the policy or for lack of feasibility, however. While the policy outlines the specific types of proposals that RTD might pursue, many companies have submitted proposals that do not meet those requirements. In many cases, the proposals have not been innovative or RTD staff has already considered the opportunities being proposed and either rejected the idea or released a typical Request for Proposals (RFP).

Resources

Unsolicited Proposal Policy

Procurement Standards Manual (including Unsolicited Proposal Policy)

Departments

Capital Programs

Communications

Finance (Finance & Administration)

Materials Management (Executive Office)

Contact(s)

- Richard Clarke, Assistant General Manager, Capital Programs
- Susan Cohen, Manager, FasTracks Program Control
- Pauletta Tonilas, Sr. Manager, Public Relations and Public Information
- Brian Iacono, Senior Manager, Materials Management

Goal

Implement transit-oriented developments (TOD) on a small scale to identify the ideal role for RTD in development projects before undertaking a more ambitious TOD program.

Background

Transit-oriented developments (TODs) feature walkable spaces and a mix of uses located close to (and ideally within a half-mile of) a transit station or hub. As early as 1974, RTD was investigating "joint development," that is, working with developers, municipal governments and other partners to ensure that compact, transit-centered development occurs near rail stations when the market supports those types of projects. The proposals in those early investigations never came to fruition, however.

In the late 1990s, the City of Englewood spearheaded the Denver metro area's first TOD, Englewood City Center, a redevelopment of the declining Cinderella City shopping mall into a mixed-use, walkable urban center. The development featured government offices and public services, a park, retail, and housing, as well as an integrated bus and rail station. A number of transit-oriented projects near light rail stations along the Southwest and Southeast lines followed Englewood City Center, but RTD provided little support for TOD projects at that time. While the T-Rex (Southeast corridor) project was underway, RTD hired a transit-oriented development staffer who focused on marketing TOD to the metro area, but RTD still did not take an active role in development. At the time, RTD's primary interest in TOD was as a potential source of revenue.

In 2005, after FasTracks passed, and after a brief period when RTD had no internal staff focused on TOD, the agency brought on a Manager of Transit-Oriented Development to determine how RTD could encourage TOD projects that met the needs of the agency as well as developers. The manager created a TOD policy, which the Board adopted in 2006, to help guide future projects and define the agency's role within the development process.

Best Practice

In 2010, the Transit-Oriented Development group added staff in economic policy and began focusing on partnering with developers. At the same time, with the encouragement of a new General Manager, the department began to think more broadly about how RTD could help facilitate TOD. Stakeholders, the public, and the Board also encouraged RTD to become increasingly involved in TOD. With assistance from a consultant, the division created a strategic plan for TOD in 2010. The strategic plan incorporated the six Federal livability goals that the Department of Transportation (DOT), Department of Housing and Urban Development (HUD), and the Environmental Protection Agency (EPA) announced in 2009. The six principles are: provide more transportation choices; promote equitable, affordable housing; enhance economic competitiveness; support existing communities; coordinate and leverage federal policies and investment; and value communities and neighborhoods.

With the TOD strategic plan, RTD began moving toward a new model for TOD that would evaluate joint development opportunities based on community creation and leveraging the six livability principles, rather than focusing primarily on RTD financial return. In addition, RTD aimed to take a more proactive role in the process, partnering with developers and municipalities to create communities that were emphatically transit-oriented.

To test the principles in the strategic plan in a real-world application, the TOD division launched the TOD pilot program in 2010. Establishing the pilot program allowed the division to hire the staff to move TOD forward at RTD. The pilot program included four projects, which were chosen with an eye toward their potential for success and supportive partnership opportunities:

- Alameda Station
- Olde Town Arvada
- Federal Center
- 26th/29th & Welton Street

For the pilot program, the TOD division intentionally chose a variety of types of projects that featured different kinds of challenges and opportunities. The first two projects to move forward were the Alameda Station project, an urban, mixed-use community in central Denver, and the Olde Town Arvada project, in a relatively denser, suburban area. In both cases, the local municipalities supported the projects and assisted in moving them forward.

Because property ownership is RTD's key negotiating tool in a project, the TOD department has found that they can influence a project's design more effectively when they retain ownership of the land until a developer has agreed to a plan that aligns with TOD principles. In the case of the Alameda project, RTD was careful to retain ownership of their property until the developer agreed to a plan that worked for them.

RTD's new TOD staff, added as the pilot project got underway, acted as internal champions and a point of contact with whom partners could coordinate development. Over the course of the pilot program, the staff has found that partnering to create transit-oriented development works best when there are both internal point people at RTD and point people at the developer, municipality, or other interested organizations. At Alameda Station, for example, the developer identified a point person to coordinate with RTD's TOD manager. Those two individuals developed a positive working relationship, and were able to address minor issues and keep the project moving forward.

Areas of Opportunity

At times, given that the TOD pilot program is relatively new, it has been difficult to ensure that RTD staff based in other departments are aware of the TOD program and refer prospective partners to TOD staff. Establishing authority and influence through a standardized TOD process within RTD has been a significant challenge because promising projects sometimes do not move forward if individuals who are not as interested in TOD take the lead.

It has also been important to identify partners with a strong interest in a project who are also in a position to move the project forward. Federal Center, for example, has been a more challenging project: the Federal Government has been a willing partner, but the pace of progress on that development has been slow, in part due to federal processes.

Managing the expectations of partners and other internal and external stakeholders is essential to completing a successful project. Some external partners, notably municipalities, have had unrealistic expectations about the potential of transit-oriented development projects to succeed in places where the market does not support a high level of investment. RTD has managed this issue by gently encouraging municipalities to focus on station areas where the private sector is willing to make an investment.

Results

The Alameda Station project has been the first of the TOD pilot projects to move forward, with construction beginning in Spring 2014. The project will incorporate a mixed-use development with both residential and commercial spaces around the Alameda light rail station on the Central Line. While the developer did not emphasize the light rail station in initial plans for the project, RTD was able to negotiate a more favorable, truly transit-oriented plan through the TOD pilot program.

Of the three remaining pilot projects, the Olde Town Arvada development is closest to a launch. A supportive municipal government and good relationships with the Capital Programs Department, and Eagle P3 team have kept the project on schedule.

Resources

TOD Strategic Plan, TOD Policy, and a description of the pilot program

Partnership for Sustainable Communities and the Six Livability Principles

Departments

Planning

Contacts

- Bill Sirois, Senior Manager, Transit-Oriented Communities
- Kate Iverson, Manager, Transit-Oriented Development
- Patrick McLaughlin, Transit-Oriented Development Associate

Goal

Educate employees, investors, stakeholders and the public about RTD's financial status.

Background

RTD has become increasingly transparent with financial information in recent years. The agency has always been subject to the Colorado Open Records Act (CORA), which requires that RTD share documents with the public upon request, and potential investors can request a Banker's Book with financial information. As the 2008-2009 Recession affected sales tax receipts, public interest in FasTracks financing increased. Public scrutiny and a Chief Financial Officer (CFO) who supported transparency led the agency to share more financial information with the public before receiving specific requests. In addition, the CFO was inspired by other transit agencies to make financial information as easily available as possible.

Best Practice

Budget Book

RTD publishes an annual Budget Book outlining agency finances for the upcoming year. The Budget Book is available to the public on RTD's website. The Government Finance Officers Association (GFOA), a major industry association, has awarded RTD their Distinguished Budget Presentation Award for thirty years in a row. The GFOA assigns anonymous, independent reviewers to assess government budget books, and sets criteria for industry budget documents. According to the GFOA, the Budget Book should be a:

- Policy Document
- Operations Guide
- Financial Plan
- Communications Device

Over time, the Budget Department has added information to the Budget Book, including an overview of the agency's mission, with annual accomplishments and goals for the upcoming year tied to mission statement elements. Departmental goals and accomplishments also appear in the Budget Book, as well as a description of RTD's governance. Most recently, the department improved the Budget Book by streamlining it and making it more user-friendly. As part of that process, they added more charts and graphs to make the information more accessible and easy to understand. The GFOA reviewers praised the narrative overview in the 2014 edition.

The Budget Book serves as both an external and internal document. External audiences include bondholders and citizens and taxpayers of the District. Internally, the Budget Department shares the Budget Book with each Assistant General Manager (AGM), the General Manager, and the Board of Directors. The Budget Book is also a useful reference for staff throughout the year.

Comprehensive Annual Financial Report

RTD releases a Comprehensive Annual Financial Report (CAFR) that summarizes the organization's financial situation for the upcoming year. The CAFR is the public sector equivalent to a public company's 10-K report, and is required by the State of Colorado. Investors refer to the CAFR to determine whether RTD is using resources responsibly. In addition, producing the CAFR supports RTD's bond ratings.

Culture of Transparency

Public interest in FasTracks corridor financing has led the Finance Department to literally open the books to the public. Before receiving an unsolicited proposal from a contractor at an unusually low rate in 2013, RTD had determined that it would be impossible to finance the North Metro rail corridor for many years to come. Many meetings were held with stakeholders from the North Metro region after they asked to review RTD's financial situation, and the Finance Department opened the books to them. After studying RTD's finances, the North Metro stakeholders agreed with RTD that financing that rail line would be impossible in the near-term. After a private company submitted an unsolicited proposal to build the North Metro rail line in 2013, RTD involved the North Metro stakeholders in the request for proposal (RFP) process to designate a contractor to build that line.

Future Plans

In the future, RTD will combine the annual Budget Book with a long-term financial plan. This will provide readers with information on a one-year appropriated basis along with a long-term outlook. The long-term plan will inform potential investors, private companies that wish to submit unsolicited proposals, and the public about RTD's plans. Producing this document annually will also streamline investor requests for information. Currently, the Finance Department must produce and distribute "Banker's Books" five to six times per year upon request, but a long-term financial document would meet these requirements more comprehensively. In addition, the document will be useful for internal staff in Planning and Capital Programs to determine which planned projects are feasible.

In addition, the Finance Department and Information Technology are working to make financial information easily accessible internally using Oracle Business Intelligence software. Once that program is fully implemented, AGMs and other key staff will be able to monitor department finances with user-friendly dashboards that will summarize real-time budget information.

Area of Opportunity

Gaining support for increasing financial transparency at an agency that had been less transparent in the past has been challenging at times. A supportive Board, General Manager and Senior Leadership Team as well as a CFO focused on increasing transparency were essential to opening RTD's culture and sharing as much information as possible. Still, RTD is not as transparent as some transit agencies: for example, many agencies share salary records, and some share all transaction records online. Determining the ideal amount of relevant, useful information to share without causing information overload is a continuing challenge. In addition, providing timely, accurate and relevant information also requires agency resources, and balancing those needs with the appropriate resource levels can be difficult.

Results

Aside from enabling RTD to meet legal requirements, the culture of financial transparency has increased interest from investors and improved relations with stakeholders. In addition, making as much information as possible freely available on the website has saved staff time by streamlining internal and external requests for information. The Budget Book and the CAFR have become essential reference documents not only for those seeking financial information about RTD but for anyone seeking a broad overview of the state of the agency.

Resources

RTD Adopted Budget 2014 ("Budget Book"):

RTD Comprehensive Annual Financial Report 2013

Government Finance Officers Association (GFOA) Distinguished Budget Presentation

Departments

Finance (Finance & Administration)

Contacts

- Douglas MacLeod, Controller
- Jannette Scarpino, Manager, Budget & Financial Analysis

Goal

Save money, finish projects on time, establish an integrated and seamless team and ensure that RTD is in a strong negotiating position by working collaboratively with contractors and other government organizations.

Background

Since at least the T-Rex (Southeast Corridor) project, RTD has worked to partner effectively with both municipalities and contractors. During the Southwest Corridor project, RTD established a reputation in the industry as an agency that would be flexible with contractors while still representing the interests of District citizens. That attitude first paid off during the Central Platte Valley (CPV) project: RTD planned the CPV quickly and made a number of changes, which required significant changes up to the final design. In response to RTD's approach to contractors, the CPV contractors were flexible with RTD, working through issues rather than charging a large amount for change orders.

During the T-Rex project, RTD worked with the City and County of Denver, the Colorado Department of Transportation (CDOT), and Federal agencies to deliver the first of its kind light rail and road expansion project ahead of schedule and under budget on November 17, 2006. RTD learned that the T-Rex project could only be successful if they worked with CDOT because each agency had a strong stake in the project. With the success of these relationships, RTD formalized the process by embedding representatives from both CDOT and the City and County of Denver in the FasTracks Planning and Capital Programs offices.

Best Practice

RTD's Capital Programs Department has intentionally created a culture that encourages partnering with other government agencies and contractors. There are at least three key components of this culture: decentralized decision-making, fostering personal relationships between RTD staff and contractors, and developing a positive working relationship with Procurement.

RTD's senior leadership pushes down decision-making to staff at lower levels, which gives that staff the flexibility to negotiate directly with contractors and municipalities rather than elevating issues. This approach enables staff to solve problems early, before RTD, contractors, or government partners incur significant costs. In part because of the agency's decentralized approach, RTD staff at all levels are able to develop positive working relationships with contractors. Those relationships are essential when a project is running behind or RTD requires work that was not scoped in the original contract.

In addition, the Capital Programs Department has worked to build a trusting relationship with the Procurement division. Over time, Capital Programs staff have proven that they can be trusted to act in RTD's best interests. This trusting relationship allows for some flexibility for Capital Programs as they negotiate contracts.

Results

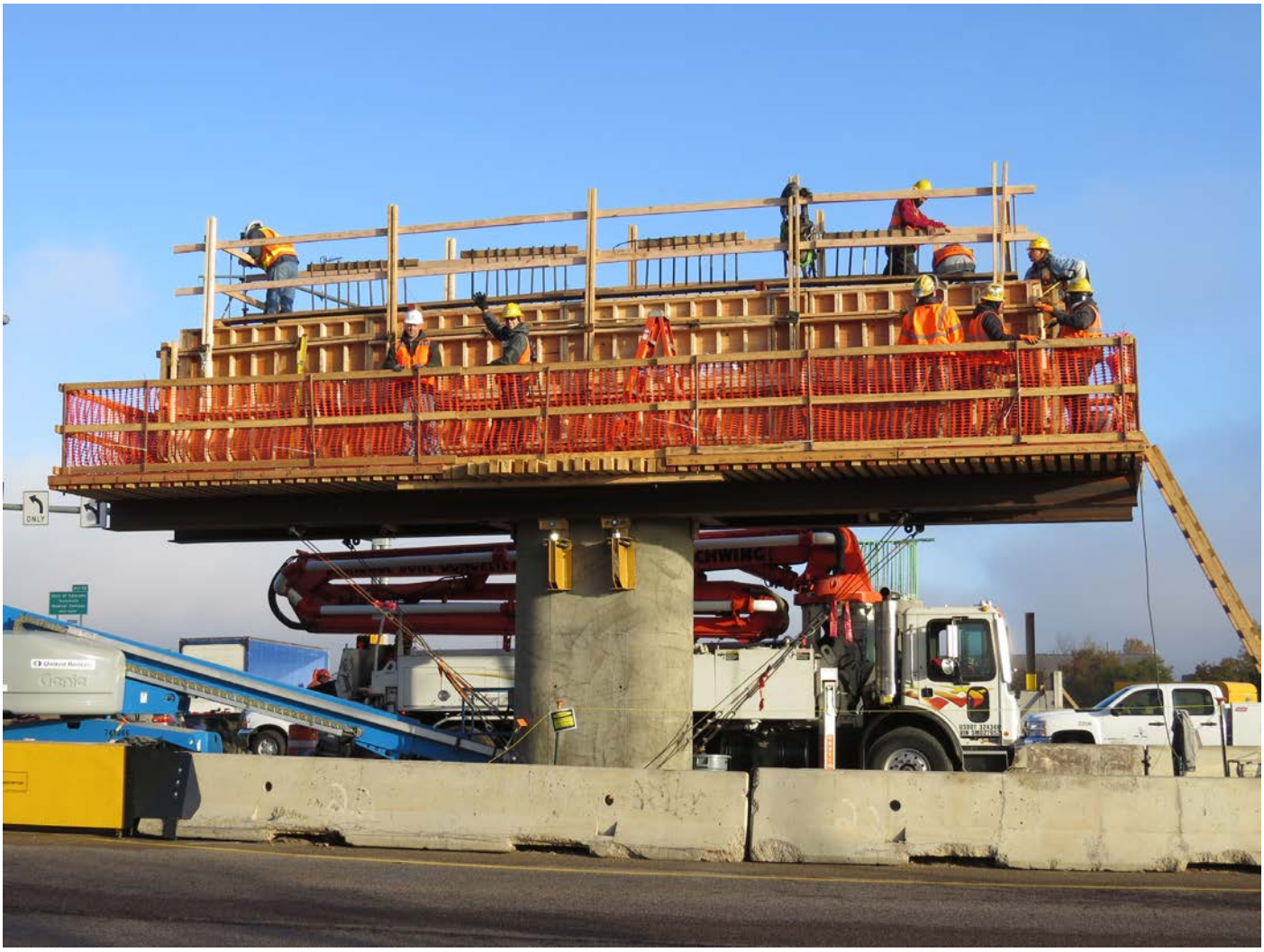
Because RTD is known as a preferred client, the agency receives more bids at better prices than they otherwise might. In addition, contractors will occasionally take on unscoped work, which has allowed RTD to finish projects on time: just as RTD is flexible with contractors, contractors are flexible with RTD. At the same time, RTD's tendency to work well with local governments has allowed the agency to finish complex projects relatively quickly. Although the agency occasionally escalates a situation or has an issue with a contractor, the benefits of partnering have far outweighed the risks. Partnering well with both contractors and other agencies has been a major component in RTD's success building FasTracks in a difficult economic and political climate.

Departments

Capital Programs

Contacts

- Pranaya Shrestha, Sr. Manager, Program Management
- Frank Buczkowski, Sr. Manager, Systems Engineering & Construction



Goal

Increase the participation of small and disadvantaged business enterprise (SBE/DBE) subcontractors in RTD construction projects and save money for the district by eliminating bonding as an obstacle.

Background

In meeting with minority and disadvantaged businesses during the development of the FasTracks program, RTD was advised by small business groups that bonding requirements were an impediment for potential SBE and DBE subcontractors. Colorado law requires penal bonds (payment and performance bonds) for prime contractors on large public works programs.. In practice, contractors typically pass on bonding requirements to subcontractors. Federal DBE regulations require that agencies receiving federal funds assist DBEs in overcoming limitations including inability to obtain bonding. RTD had created owner-controlled and self-insured programs for liability risks on construction projects in the past and could build on those models for a program addressing bonding. The program began with the West Line and has been implemented for the I-225 corridor.

Best Practice

RTD creates a self-insured loss fund ("Program Fund") that covers claims that could have been made against subcontractors' sureties if they had obtained a bond, allowing SBEs, DBEs, and other subcontractors to perform work for RTD even if they cannot qualify for bonds. All subcontractors with contracts below a certain dollar threshold must participate in the program: if only high-risk subcontractors were included, the program would be unaffordable. RTD evaluates subcontractors as to the financial and technical qualifications prior to admitting them to the program and monitors their performance. RTD does not collect premiums. Instead, RTD works with an insurance broker to determine the amount that each subcontractor would have paid for bonds plus overhead and profit, and deposits that amount in the Program Fund. RTD requires the prime contractor to require all subcontractors with contracts below the established dollar threshold to participate in the program and to limit claims against subcontractors to the amount in the Program Fund.

Results

The program began in 2008 with West Line rail construction. During that project, there were 37 subcontractors in the program, and 23 were DBEs. Thirteen were new subcontractors to RTD, and nine had never qualified for a bond. Eight contractors did not qualify. RTD saved an estimated $243,681 compared to construction bonds (not including program development and monitoring). There were no claims.

Resources

Marla Lien Presentation to APTA "RTD's Subcontractor Performance Self-Insured Program"

Departments

General Counsel

Contact(s)

- Marla Lien, General Counsel
- Robert Medina, Risk Manager

Goal

Objectively track and measure how the region changes as RTD plans, constructs and opens FasTracks.

Background

The 2004 FasTracks Plan outlined three key goals for the rail expansion program:

- Provide improved transportation choices and options to the citizens of the district
- Increase transit mode share during peak travel times
- Establish a proactive plan that balances transit needs with future regional growth

When a transit agency such as RTD constructs a rail line using Federal funds through Full Funding Grant Agreements (FFGA), the Federal Transit Administration (FTA) requires a "Before and After Study" comparing the project scope, transit ridership, service levels and costs at the time the project is proposed, just before opening, and after the project has been open for two years. In 2004, after FasTracks passed with the goals outlined above, Planning Department leadership decided to conduct a more extensive study that would expand on the FTA's "Before and After Study" concept. The Quality of Life study was the result. Unlike Before and After studies, the Quality of Life study has a broad focus, examining general indicators of changing mobility, transit mode share, and growth patterns across RTD's region.

Best Practice

The Quality of Life study is a long-term effort that aims to objectively measure changes happening within RTD's region as FasTracks is constructed. Changes are tracked and analyzed at three geographic levels: regionally, corridor, and station-level. RTD produces a short, annual Quality of Life report (high-level measures report) each year, as well as a comprehensive report every three years (detailed report). The reports are divided into three sections based on the three FasTracks Plan goals (above).

Each section includes measures that track changes in relevant indicators of growth, transit mode share, and transportation choices. For example, "taxable retail sales" is one high-level measure within the section on regional growth. One measure of increasing transit mode share at peak times is annual transit boardings per capita. Percentages of regional destinations served by high-frequency transit are measured in order to help show how transit offers transportation choices.

Initially, in early 2006, RTD's Planning Department worked with a multi-disciplinary team of consultants and RTD internal staff to create a baseline report identifying all of the measures that the study would track over time as FasTracks was constructed. Over time, measures have changed somewhat as sponsoring organizations discontinue data collection in some areas and new data sources become available. Ensuring consistency over time has been one of the challenges of the project.

With strong support for the Quality of Life program from the beginning, RTD staffed the program and funded consultant support at appropriate levels. Initially, the Planning Department relied heavily on consultants. Once the measures were established, RTD was able to cut back on consultant support. Currently, with the Quality of Life program in its eighth year, one internal project manager at .3 to .5 FTE and a small consultant team are adequate to run the program. Aside from the project manager, the study requires a graphic designer and a data analyst, both of whom work through consultants on an ongoing FasTracks contract.

QUALITY OF LIFE MEASURES SUMMARY

High Level Measures **Bolded** Below

Goal: **Establish a Proactive Plan** That balances transit needs with future regional growth

1 MEET Future Transportation NEEDS	Population Growth	Population (R, C)
		Urban Land Consumption (R)
		Urban Residential Density (R)
		Population Density (C)
	Job Growth & Employment	Annual Change in Employment (R)
		Directly Supported Jobs (R)
		Indirect Job Creation (R)
		Unemployment Rate (R)
		Employment (S)
	Housing Growth	Housing Starts (R)
2 PROVIDE Opportunity for Development NEAR TRANSIT	Economic Activity	RTD Sales Tax Revenue (R)
		Taxable Retail Sales (R)
		Fuel Cost (R)
		New Development (S)
	Property Value	Apartment Rent (R, S)
		Housing Affordability Index (R, C, S)
		Transportation Cost (R, S)
		Commercial Lease Rates (S)
		Property Values (S)

Goal: **Increase Transit** Mode share at peak times

3 ENVIRONMENTAL Sustainability	Sustainable Design	**Sustainable Project Features & Actions (R)**
	Air Quality	Vehicular Emissions (R)
		Number of Air Quality Exceedences (R)
	Energy Consumption	Transportation Energy Consumption per Capita (R)
		Excess Fuel Consumed Due to Congestion (R)
		Fuel Saved Due to New Transit Trips (R)
4 Transit Usage	Peak Transit Mode Share	Mode Share (R, S)
	Ridership	Transit Boardings (R, S)
		Annual Transit Boardings per Capita (R)
		Passenger Demographics (R)
		New Transit Riders (R)
5 TRAVEL Safety & Security	Accidents	Safety Benefit (R)
	Crime	Crime Rate on RTD Property (R)
		Security Resource Inventory (R)
	Passenger Perception	**Safety Perception (R)**
6 CUSTOMER Satisfaction	Passenger Satisfaction	**Overall Service Rating (R)**

Goal: **Improve Transportation** Choices & options

7 SYSTEM Mobility	Vehicle Miles Traveled	Transit VMT Impact (R)
		Vehicle Ownership (R,C,S)
	Congestion	Extent of Congestion (R)
		Duration of Congestion (C)
	User Cost Savings	Motorist Congestion Cost Savings (R)
		Transit Riders Cost Savings (R)
	Travel Times	**Corridor Travel Times (C)**
		Travel Time Variability (C)
	Traffic Volumes	Peak Period Freeway Volumes (C)
		Peak Period Arterial Volumes on Parallel Streets (C)
8 PROVIDE TRAVEL Choices & Accessibility	Transit Service	Miles of Rapid Transit Facilities (R)
		Revenue Hours of ADA Service (R)
		Transit Revenue Hours (R)
	Transit Access	Access Mode (R)
	Auto Access	**Park-n-Ride Capacity & Utilization (S)**
		Park-n-Ride License Plate Survey (S)
	Bike Access	Bicycle Parking Inventory (R)
		Bike-on-Bus Usage (R)
		Station Bicycle Access (S)
	Pedestrian Access	Population within Walking Distance (S)
		Employment within Walking Distance (S)
		Station Pedestrian Access (S)
	Household Access	Population Served by High-Frequency Transit (R)
	Job Access	Employment Served by High-Frequency Transit (R)
	Destination Access	**Regional Destinations** Served By **High-Frequency Transit (R)**
	Land Use	Transit Supportive Zoning Changes (S)

(R) Regional Measure (C) Corridor Measure (S) Station Area Measure

Results

As with any major study, it is important to set appropriate expectations for results for the Quality of Life Study. The study is intended to be informative, but RTD does not necessarily make changes to FasTracks based on the results of the study. In addition, the Quality of Life Study is intended to measure district-wide changes, but there is no way to determine whether those changes are due to FasTracks or other causes – that is, it is possible to establish correlation with FasTracks, but not causation. In addition, because only one rail line has been completed so far, it may be years before FasTracks affects the region in a meaningful way.

RTD has shared the Quality of Life Study with the FTA, which has shown interest as they've worked to develop and revise measures that track transit development that can apply to transit agencies across the country. The study has also been popular with the RTD Board of Directors: Directors have appreciated the opportunity to see how the region has changed since the passage of FasTracks.

Resources

2013 High Level Measures Report

2012 High Level Measures Report

2011 High Level Measures Report

2010 Detailed Report

Departments

Planning

Contacts

- Genevieve Hutchison, Senior Transportation Planner

Goal

Involve stakeholders in RTD projects while ensuring that projects finish on time and on budget.

Background

RTD worked with many of the stakeholders (generally defined as governmental entities) that have been involved with FasTracks on the T-Rex project, which allowed the agency to establish relationships and lay the groundwork for inter-governmental agreements (IGAs) and arrangements that would become essential to FasTracks. In 2004, RTD gained metro-area-wide support for FasTracks, with municipalities across the district committing to work with RTD to accomplish mutual goals.

Best Practice/Area of Opportunity

In practice, working with stakeholders has varied depending on the specific circumstances of each project. Projects with a large number of stakeholders, who sometimes come into conflict, are generally more complicated than projects with just one or two major stakeholders.

Project managers have found that working out as many issues as possible in the planning phase is critical to maintaining good relations with stakeholders and ensuring that a project progresses later on. When those issues are not settled early in the process, sometimes RTD appears to be changing course later on, as stakeholders assume that RTD's determination to delay an issue was actually a concession or a promise.

In the most effective cases, RTD works with the municipality to define their respective roles early in the process. An essential part of the process is determining how a stakeholder will categorize RTD. In the best cases, RTD is categorized as a government entity, but many municipalities consider RTD a developer at the outset. When a municipality or county defines RTD as a developer, they often aim to receive as much money and as many concessions from RTD as possible. It is a continual challenge to convince municipalities that RTD is government, and that the entities can work together toward the same goal of serving the public. In addition, determining what kind of code will apply to RTD is critical: in one case, a municipality tried to apply standard building code to rail platforms, for example, which frustrated both parties and slowed the project.

Adding stipulations to the inter-governmental agreement (IGA) that lay out each entity's roles and responsibilities and funding arrangements has helped reduce misunderstandings down the road. In the case of the I-225 project, RTD funds a position for the City of Aurora to manage permits, review requests, and coordinate with RTD and with stakeholders at the City of Aurora as the process moves along. Funding that position was an upfront expense, but it has led to a smoother process working with that municipality as the project has progressed.

Internal conflicts about goals can also delay a project, particularly when RTD plans a Transit-Oriented Development (TOD) project along a rail line. At times, the goal of the project manager to move a project forward comes into conflict with the goal of the TOD group to leverage RTD's strength to ensure that developments along rail lines are truly transit-oriented and benefit RTD. Separating the TOD process from the rail line can allow the line to be constructed faster. From the TOD perspective, however, separating the two projects can reduce RTD's interest and leverage in TOD project negotiations and put RTD at risk for working on TOD projects that don't benefit the agency.

Resources

Inter-Governmental Agreements (IGAs) are available to staff in Aconex

Departments

Capital Programs

Contacts

- Charles Culig, Project Manager, Engineering
- Pranaya Shrestha, Senior Manager, Program Management
- Greg Straight, Project Manager, Engineering-Facilities
- Ashland Vaughn, Project Manager, Engineering

Processes

Large, mature organizations like RTD risk slipping into habits based on stagnant cultures rather than strategic decisions. RTD has encouraged employees throughout the organization to rethink the way old processes work to improve efficiency and achieve the agency's mission. Employees have fought stagnation and identified and implemented new, innovative ways of approaching problems.

The following best practices highlight process improvements that have increased safety, lowered costs, and improved the quality of RTD's services and construction. From a new reporting method that has reduced bus accidents to an asset management system has led to better, data-driven decision-making, to a budgeting process that refocuses financial decision-making on core strategies, the following best practices highlight areas where RTD has taken opportunities to innovate. The best practices in this section outline strategies for transit agencies that are seeking ways to improve processes and implement mission- and data-driven decision-making.

Goal

Increase safety in bus operations.

Background

In 2010, RTD had three fatal bus accidents within one week, with four fatalities. That incident brought press attention to the agency and inspired a major safety campaign and long-term measures to reduce accidents.

Best Practice

The Safety, Security and Facilities and Bus Operations Departments worked together to implement initiatives to improve safety in Bus Operations and reduce accidents for the long-term.

Tracking and Performance Measures

Safety and Bus Operations worked together to develop a formal reporting process and perform analyses of accidents. The safety compliance officer for bus operations began collecting accident records from Dispatch, street supervisor reports, and reports that bus operators fill out after an accident occurs. The safety officer compiles data from the reports in an Access database and uses Excel to analyze the data, track trends over time, and produce regular reports for Senior Leadership.

In 2011, using this method, the safety officer identified an increase in right-turn accidents. Safety and Bus Operations worked together to conduct a safety campaign on that topic:

» Bus Operations tied red ribbons to mirrors to remind operators to check them
» Internal newsletters featured articles on right-turn accidents
» Training included a module on right turns in an annual refresher course

Training Improvements

Bus Operations instituted an annual refresher training program for all operators. The one-day program includes both industry standard defensive driving courses and training on specific issues based on accident trends identified by the Safety Officer. In addition, Bus Operations identified operators with significant histories of accidents and safety issues for re-training.

Regular Safety Meetings

Bus Operations and Safety conduct monthly safety meetings at each division. A cross-functional team attends the meetings. Both represented personnel selected by the Union (ATU) and supervisors attend. Attendees include:

- Two bus operators from each operating division
- Mechanics
- Service and cleaning staff
- Sign shop staff
- Treasury staff
- Supervisors
- Trainers
- Safety compliance officer
- Managers
- Assistant managers

More recently, Bus Operations has implemented a drive-along program, with street supervisors driving along with each operator at least once per year.

Area of Opportunity

Initiatives are underway to improve safety in Bus Maintenance, but are less advanced than in the Bus Transportation Division. Currently, Safety and Bus Maintenance are working together to develop an accident investigation process for that division. The safety officer has recently developed forms for accident investigations for mechanics. An agency-wide employee survey conducted in January 2015 revealed that safety is a larger issue in Bus Maintenance than in Bus Transportation. Although the majority of bus maintenance employees (66%) responded favorably to safety questions overall, and a slight majority (53%) felt that Safety is RTD's top priority, those numbers fell far below the average for the agency overall.

Results

In 2012, RTD reduced preventable accidents by 32% compared to 2011. Although accidents have ticked up recently due to a change in FTA reporting standards, RTD has established a safety culture among operators. The 2015 Employee Survey revealed that Safety is RTD's strongest area, with 78% of all employees responding favorably to safety questions. In Bus Transportation, 76% of employees responded that Safety is RTD's top priority on the employee survey.

Departments

Bus Operations

Safety, Security & Facilities

Contact(s)

- Bruce Abel, Assistant General Manager, Bus Operations
- Alice Osner, General Superintendent, Transportation
- Martha Bembry, Safety Compliance Officer

Goal

Establish a systematic process to select projects for funding in the Strategic Budget Plan (SBP).

Background

Each year, RTD develops a fiscally-constrained Strategic Budget Plan (SBP) outlining projected service levels, associated operating costs, and capital and expense projects for the next six years. Projects are evaluated based on their relative costs and benefits to the public and must operate within the constraints of the forecasted budget. The first year of the SBP capital and operating program serves as the basis for the preparation of the annual budget.

Historically, the Budget division of the Finance and Administration Department convened meetings of Assistant General Managers (AGMs) and senior staff to select projects for inclusion in the six-year SBP. These selections relied heavily on narrative arguments rather than established objective selection criteria. Projects were submitted in Word or Excel documents, making the process exceptionally labor intensive for both project sponsors and the Budget division.

Best Practice

In 2013, the Budget division began exploring methods to make project selection more rigorous and automate the project submission process. The Information Technology (IT) Division already had in use the cloud-based Innotas program for IT project prioritization and management. IT suggested that this platform might be adapted to the SBP project process to help streamline and prioritize the project selection process. The Budget division worked with IT and a development group (including Innotas super-users) to develop a process for project entry and to establish criteria based on RTD's mission statement elements for ranking the desirability of each project. In consultation with the Senior Leadership Team (SLT), the development team established weights for each ranking criterion and then trained budget analysts, request submitters and AGMs on the automated process before rolling it out. The incremental training and SLT periodic briefings were critical in establishing buy-in for this new process.

The Process

Each project sponsor is required to provide the following information on a request:

- Project description
- Project justification
- Project activities
- Capital costs
- Operating and maintenance costs
- Cost savings
- Expected project outputs
- Staffing requirements

Requesters must also rate (1-10) how the project enables RTD to address the following areas derived from RTD's mission statement:

- Accessibility
- Cleanliness
- Cost-effectiveness
- Courtesy
- Meets future needs
- Reliability
- Safety

Sponsors also rate the business unit benefits and risk of no action for each project.

In this way, each project request (311 total requests submitted in 2014 for the 2015-2020 SBP) is scored by the project sponsor, the appropriate AGM and, critically, a five-person investment review panel convened to score all project requests. The investment review panel is selected and approved by the Senior Leadership Team every year. Panel members have the option to recuse themselves from projects within their own departments.

After all three parties score the requests, the total of the scores for each project are averaged to obtain a final score. The Budget Department ranks all project requests by final score and compares these scores to prioritize projects in a more objective fashion than in the past. In 2014, there were still more requests than funds available in the SBP. When this occurs, Budget meets with each AGM and staff to trim down his or her list before convening a senior staff meeting to determine a final list of projects for the SBP. In 2014, AGMs remarked that the new process helped them consider projects within their own departments objectively and offered a useful baseline when discussing the projects in the Senior staff meeting.

Budget recognizes that there will always be some sustaining and necessary projects that do not score well by these criteria, for example, road repair or art maintenance. The project selection team must remain vigilant to ensure that sustaining projects continue to be funded. When a project does not score well, the sponsor must explain why it fell into the sustaining category. If they cannot, the project is deferred or removed from the SBP.

Area of Opportunity

The Budget Division plans to take an incremental approach to the project priority process, building on early successes and continually seeking areas to improve. In 2015, Budget plans to explore ways to incorporate data from the Asset Management group into decision-making while also considering how projects deferred in the SBP should best be handled. Additionally, as the process becomes more mature, the department may seek a specialized, more user-friendly software package that can deliver more robust reporting.

Results

In its first year, the project priority process added much-needed objectivity to RTD's annual strategic budget planning. While the number and costs of the requests still outstripped the available budget, the Budget Division and senior staff were able to use the project scores as a valuable input into their final decision-making.

In addition to making the annual SBP project selection process more objective, the Innotas tool has given Budget a cloud-based database that will include all SBP project requests. Budget's use of Innotas significantly improved reporting and saved time organizing requests from all departments. In future years, requesters will be able to simply update the database with any new information, saving time for all parties.

Resources

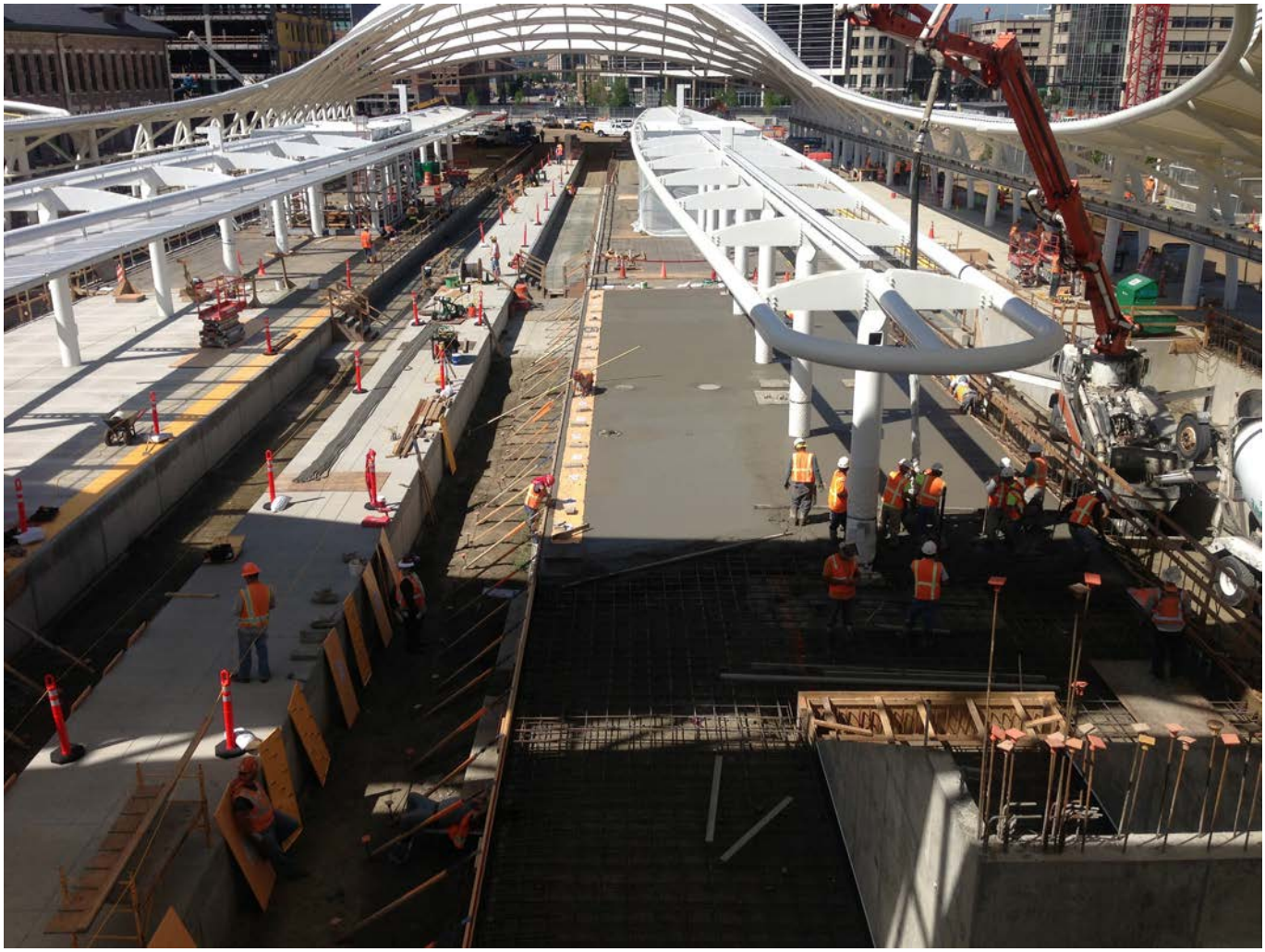
RTD Strategic Budget Planning (SBP) Request Procedure 2014

Departments

Finance (Finance & Administration)

Contact(s)

- Jannette Scarpino, Manager, Budget and Financial Analysis
- Todd Nikkel, Senior Budget Analyst



Goal

Leverage data for investment decision-making and improve reliability, safety, cost management and customer service across the agency.

Background

The Federal Transit Administration (FTA) and the U.S. transit industry have been working to improve the understanding and practice of transit asset management. Since the passage of MAP-21 in 2012, transit agencies have been required by national policy to establish asset management and state of good repair programs. Under MAP-21, the Federal Government requires transit agencies to prepare a Transit Asset Management Plan (TAMP). This plan provides a framework for managing assets both individually and as a portfolio of assets that comprise an integrated system.

Even before MAP-21 went into effect, RTD decided to develop an asset management system. In addition, the Safety, Security and Facilities (SSF) Department had been struggling to get funding and support for projects. The senior manager of property management developed the concept of an asset management program. An initial goal was to come up with a risk assessment tool for projects. When the FTA began to emphasize asset management in 2010, RTD made the program a priority. In 2010, the RTD Board of Directors made the creation of an asset management program with a state of good repair component a strategic goal for 2011.

Best Practice

The SSF department started a pilot program in 2011 and hired two FTEs to support the program initially. The newly-formed asset management group conducted an extensive investigation of asset management at other transit agencies, both in the U.S. and internationally, and in the aviation industry.

The asset management group also began investigating software options. With assistance from the Information Technology (IT) Division, they learned that RTD had already purchased Oracle's Business Intelligence software (Oracle Business Intelligence Enterprise Edition or OBIEE). Asset management determined that this software would suit their needs. While IT had already purchased the software, they had not yet implemented it in any department. The IT department's involvement was limited to the initial suggestion to use the Oracle software. The asset management group decided to build the software in-house because they wanted to understand the system, customize it if the agency's needs changed, and be able to fix it if they had problems. They discovered that RTD had the talent to implement the project in-house.

The asset management division created a pilot and selected bus maintenance due to that division's long history of collecting data. Initially, asset management uncovered a number of challenges in identifying performance measures and condition measures. Defining an asset also required a substantial investment of time and resources. They also learned that the data that RTD had been collecting was not clean. Since the pilot, the asset management department has taken an iterative approach to the program's development, constantly adjusting and revising processes they use as the need arises.

In 2014, RTD created a Transit Asset Management Plan (TAMP) for the agency based on FTA regulations. The asset management plan is intended to share lessons learned from those with hands-on experience with each type of asset with other transit agencies. The purpose of the plan is to position RTD to transition from a "fix when fail" maintenance culture to a "predict and prevent" approach that will reduce costs

and improve safety and reliability. The plan includes examples and practices that RTD can apply and provides guidance for the District to improve awareness of asset management. The plan will be integrated into agency-wide strategic planning and policy initiatives. The TAMP will be updated periodically.

Change management has been a critical success factor for the asset management program. In particular, building trust with maintenance departments and other internal stakeholders has been essential. The Asset Management and State of Good Repair group has found that hiring from within is the most effective way to ensure that they have good relationships with other areas of the agency. In 2014, Asset Management conducted a survey of maintenance employees to determine how well key stakeholders understood the asset management program and how much they valued it. The survey uncovered a continued lack of understanding of asset management. The asset management group began work on a communications campaign to address the issue and will survey the same maintenance divisions again in 2015 to determine whether the increased outreach is effective.

Results

Asset Management and State of Good Repair (SGR) are in compliance with the 2010 RTD Board strategic goal and MAP-21. The asset management program has also produced dashboards to allow Senior Leadership access to up-to-date data about performance, condition and age-based asset scores and measures. SGR inspectors fully implemented condition assessments for bus, light rail vehicles, park-n-rides, light rail stations, and operating facilities in 2014, and intend to build on that experience to make progress in implementing facilities, rail infrastructure, IT, security, and support vehicles asset management. Asset Management has also identified potential cost savings. For example, the group analyzed data to determine which light rail vehicle heating, ventilation and air-conditioning (HVAC) unit is the most cost effective for future purchases. The Asset Management ivision has also assisted many RTD departments with projects to improve processes, organize and update data in Maximus, and identify potential cost savings.

Resources

FHWA - MAP-21 Website

FTA Research: Asset Management Guide. October 2012

RTD TAMP

Departments

Safety, Security & Facilities

Contact(s)

- Jim Sutton, Manager, Asset Management
- Lou Cripps, Asset Management System Administrator
- Luke Westlund, State of Good Repair Supervisor
- Charles Austin, State of Good Repair Supervisor

Goal

Ensure capital projects are completed on-time and on-budget and ready for revenue service on opening day.

Background

RTD has developed a thorough activation and testing program that brings input from all departments together more than a year prior to corridor opening to identify and resolve potential issues with operation. The activation process is critical to identifying the needs of every department during construction so the contractor can address issues before RTD takes possession and begins revenue service.

On the West Rail Activation, the team followed a detailed Integrated test plan for crossings, overhead contact system (OCS), signals and communications systems with specified test descriptions, resources identified and criteria for success. Contractors played a supporting role and were required to address any issues identified during integrated testing. Key areas of impact and cooperation include:

- Safety certification program
- Completing all integrated testing
- Completing all construction activities
- Coordinating operations staffing and budget
- Performing an operations and safety readiness review

The activation project manager held weekly meetings with representatives from relevant departments and divisions to monitor progress and schedule track access for the following week. If requests were not made at those meetings, they were only granted in emergencies. RTD Rail Operations has continued the weekly meetings within their department to integrate the maintenance and operation of the entire system.

Best Practice

Preliminary planning for activation involves many moving parts. It is helpful to have an opening day target and work backward from that date at least two years in advance initially focusing on high-level milestones rather than the detailed deliverables. Without the activation process setting the milestones, people may find it hard to focus on the necessary tasks during construction. With this skeletal outline, the project manager works with department heads to determine the right representatives and, then, works with those representatives to identify the fundamental details the contractor will need to address to accomplish each milestone.

Strong leadership is also crucial to establish the importance of activation early. The West Rail Line project manager and the Assistant General Manager (AGM) for Rail Operations both had prior experience with rail activations and identified the appropriate staff that should be involved while emphasizing the value of the exercise at the beginning.

Early in the west rail activation process weekly meetings only required attendance by representatives who had deliverables to discuss. The project manager determined that requiring attendance from the whole team helped identify issues earlier and also created a more dynamic problem-solving environment. Additionally, the early inclusion of a liaison from Rail Operations helped identify issues early and maintained a focus on constructing everything needed to operate revenue service.

Results

The West Rail corridor opened within budget and ahead of schedule on April 26, 2013. The integrated testing of the 22 at-grade crossings (in a Colorado winter) was completed by internal staff in the two months allotted in the schedule. After completion of integrated testing, the project was turned over to Rail Operations, allowing them almost two months for pre-revenue testing, which included training, certification of train operators, emergency drills and simulated service.

The Capital Programs' Program Management Lessons Learned report notes that Rail Operations provided excellent support to Capital Programs throughout the project, and particularly during the integrated testing period when resources such as trains, train operators/supervisors, and wayside maintenance personnel were needed on site to complete the integrated testing procedures.

Also, through the Activation process the AGM of Rail Operations and AGM of Capital Programs recognized the benefits of installing a senior rail operations manager working on the project in a major role from the beginning to weigh in on the many decisions that affect rail operations during construction. Rail and Capital Programs have instituted this practice on subsequent construction corridors, embedding a senior manager from the rail operations department in the project team funded through the FasTracks program.

Resources

West Rail Line Program Management Lessons Learned Report

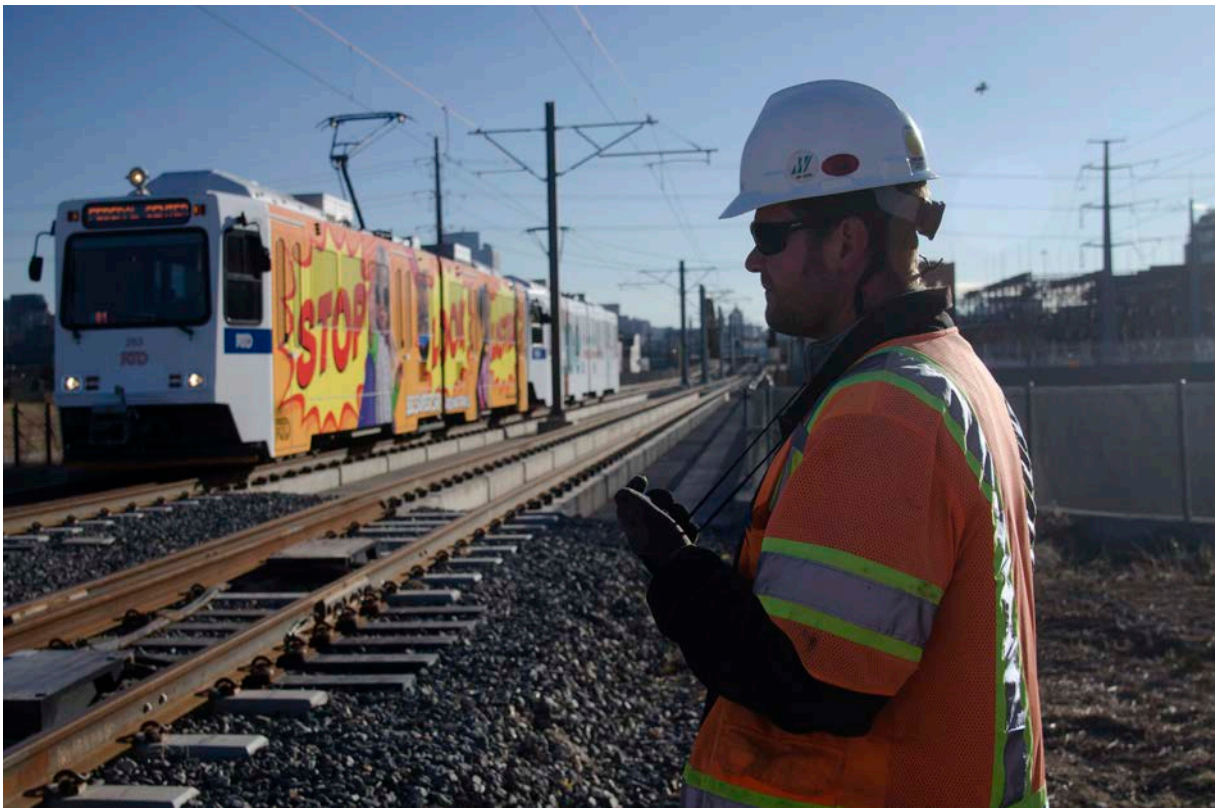
Departments

Capital Programs

Rail Operations

Contact(s)

- Mark Baudermann, Project Manager, Systems Integration & Project Activation



Goal

Provide safe, efficient, seamless rail service during special events.

Background

When RTD opened the Metro Area Connector (MAC) line in 1994, the agency eliminated a large number of bus trips and struggled to manage the crowds from the Parade of Lights. Rail Operations learned from that initial negative experience and began planning and allocating resources for special events more effectively.

Best Practice

During a special event such as a Broncos game, New Year's Eve, the Parade of Lights, convention center events such as the Great American Beer Fest, and Rockies games, Rail Operations successfully ramps up service for extra riders. A number of factors contribute to Rail Operations' ability to manage major events with large crowds:

1. The system, especially stations at Decatur/Federal, Sports Authority Field, and Pepsi Center, is built to accommodate crowds during events. Those station plans include gates for fare enforcement, large, open areas, and easy access to event centers. Planning for special events when constructing the stations helps operations run smoothly.
2. Rail Operations "stacks" trains (lines them up at locations where they can reach event stations easily) before events are expected to conclude, saving time when the event lets out and the crowds arrive at the stations.
3. Rail Operations uses a standard template for service planning for major events, which saves time and allows them to provide sign-up information to staff as early as possible.
4. Rail Operations ensures that extra staff sign up for extra shifts before events. Certain events, such as New Year's Day, require all hands on deck.
5. Rail Operations stations mechanics, service and cleaning employees, and security and other employees to handle crowd control at key points along the route to the stadium or other event location in case issues arise. Having mechanics and other employees already deployed prevents delays.

Results

After a typical Broncos game, RTD moves 10,000 people by light rail out of the stations serving the stadium in 75 minutes. Even during significant events such as major concerts (U2, Kenny Chesney), the Democratic National Convention, the West Rail opening, and Broncos' playoff games, RTD has successfully managed especially large crowds of light rail riders. To date, RTD has not had serious incidents or problems during special events. The longest delay at a Broncos game has been just 20 minutes.

While ridership on the W rail line has come in under expectations overall, ridership during special events has exceeded expectations.

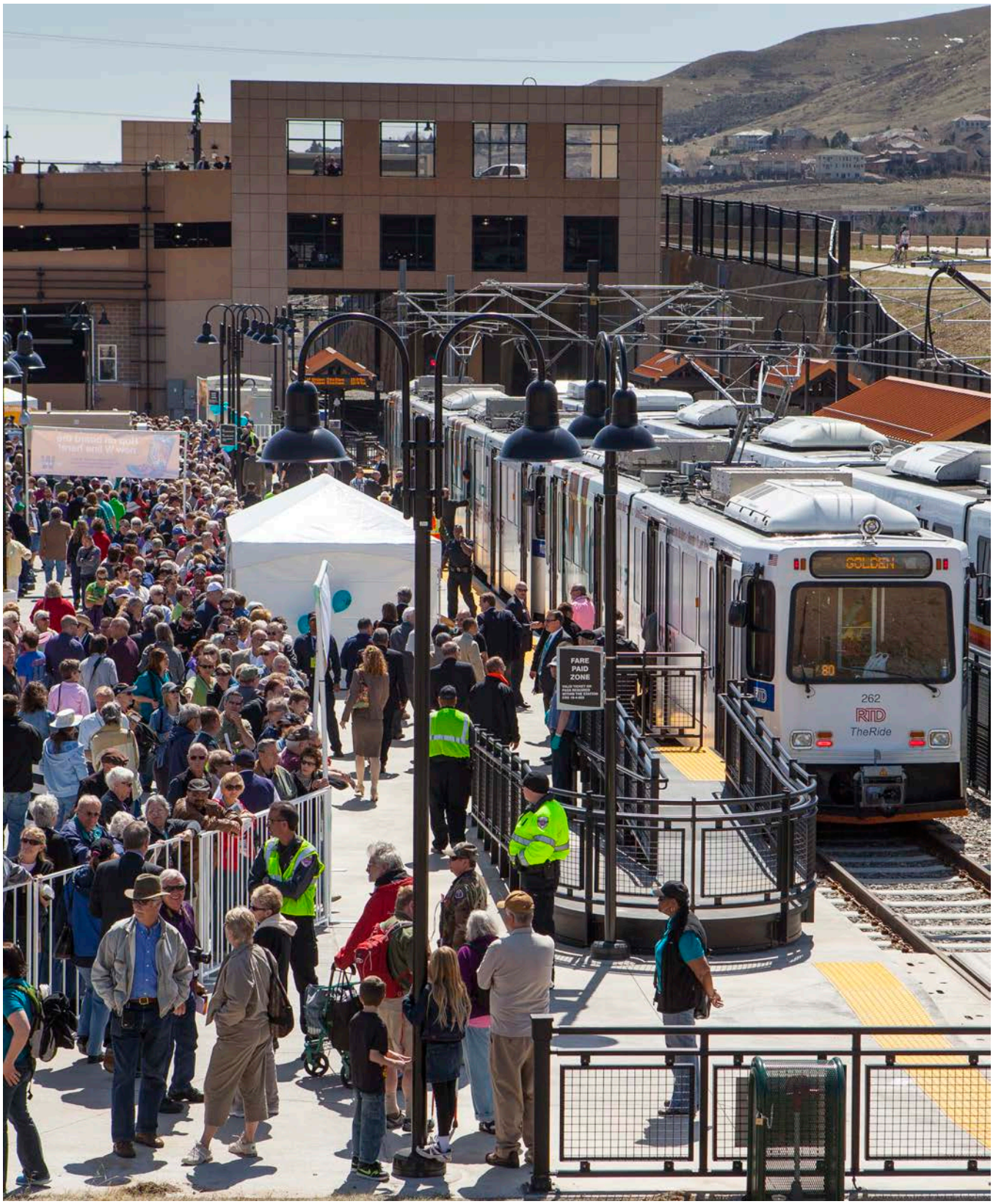
Peer transit agencies have requested assistance from RTD when planning stations near event centers and when planning for major events.

Departments

Rail Operations

Contact(s)

- Rocky Whalen, Lead Light Rail Controller



Goal

Examine RTD revenues, expenses and controls and recommend ways to improve the fiscal sustainability of the organization.

Background

In 2011, faced with declining revenues due to the financial crisis, RTD convened a task force of internal and external experts to ensure fiscal sustainability by exploring opportunities for operating efficiencies and revenue enhancements. The task force recognized that there would be no "silver bullet" solution and, instead, developed a combination of policies and strategies that could help achieve fiscal sustainability. As the task force convened, a financial shortfall brought on by the Great Recession had dramatically reduced sales tax receipts, forcing the agency to cover the gap with set aside reserves. In 2012, the shortfall was projected to be $35 million. Despite these challenges, the task force was committed to focus not simply on near-term challenges but also consider longer-term solutions.

Best Practice

The task force brought together 21 professionals with legal, financial, transit operations, and planning expertise from inside and outside the agency for 11 meetings over eight months. All participants were given extensive background information about the financial challenges transit agencies faced nationally, as well as RTD-specific fiscal concerns. The participants brainstormed revenue enhancement and expense reduction strategies. RTD staff then evaluated top-rated solutions in greater depth and developed recommendations for RTD Board approval. Those recommendations were:

Policy Changes

- Adopt a Fund Balance Policy to provide working capital to smooth the volatility in tax receipts and to respond to extreme events
- Institute a Capital Replacement annual set-aside to fund replacement of rolling stock and avoid debt service charges
- Apply a conservative approach to Sales Tax Projections to remove volatility in budgeting

Revenue Enhancement

- Pursue legislative action to make RTD's sales tax base consistent with that of the state
- Continue to collaborate with CDOT as they develop tolling and managed lanes in the region
- Use three-way partnerships (RTD, local governments, developers) to establish regional and local tax districts to place an additional, modest mill levy on property close to light rail stations
- Self-collect sales tax
- Improve fare recovery ratio by either reducing service or increasing fares
- Charge for parking
- Sell "sponsorships" or naming rights of facilities

Expense Reduction

- Conduct a comprehensive energy audit and use innovative technology to enhance efficiency
- Optimize service efficiency: examine benefits of serving the District broadly throughout versus focusing on serving the most riders
- Examine the delivery methods for paratransit
- Partnerships-privatization: may include privatizing routes, administrative functions like cash handling, and operational functions such as parking lot maintenance

Results

Early Successes

Taking the recommendations of the Task Force, RTD has contracted with the University of Colorado Leeds School of Business to provide quarterly sales and use tax projections for the short, medium and long term. The outside experts use sophisticated modeling techniques and analytical evaluation to add credibility and remove volatility from projections and increase RTD's confidence in forecasts for a source that accounts for approximately two thirds of RTD's revenue.

RTD also took a hard look at bus and rail service levels to optimize service efficiency. In January 2012, a reduction in bus and rail service hours of approximately 8% took effect. RTD watched ridership and savings carefully. The service changes have resulted in $8 million annual savings with no significant change in ridership.

Informed by the Task Force, RTD explored the possibility to enact legislation to establish tax exemption parity with the state of Colorado. The Task Force found that RTD might realize tax collection benefits if the state legislature brought the RTD tax on par with state sales tax in which the state occasionally adjusts exemptions to address economic cycles. At the time, RTD was statutorily prohibited from collecting tax on many items on which the state collected sales tax, e.g., soda and snack food. To bring RTD into parity, the state enacted legislation effective January 1, 2014 to bring RTD's sales and use tax base in line with that of the state of Colorado. This exemption parity legislation will simplify the filing requirements for taxpayers while establishing a uniform tax base, which may increase funding for RTD during economic downturns.

RTD also established a fund balance policy with a goal to maintain three months of operating expenses that may be used during economic downturns. The balance is kept in three accounts: a Board-Appropriated Fund, a Capital Replacement Fund and an Unrestricted Fund. The funds will be replenished during economic expansions and provide a cushion during sales and use tax downturns to avoid service disruptions.

The results of a completed energy audit encouraged RTD to implement cost-saving measures such as low energy lighting and solar power but also take a measured approach in more large-scale projects due to the prohibitive cost of initial investments for such efforts.

Ongoing Implementation of Recommendations

The primary benefits identified by the Task Force for self-collection of sales taxes lay in ensuring 100% compliance with tax filing requirements and providing analytical information not currently available from the Colorado Department of Revenue (DOR). RTD has modified this goal to perform tax compliance reviews and contracted a private firm to provide additional compliance review resources to the DOR. Contracted reviews intended to ensure 100% compliance with statutory sales and use tax regulations within the District are currently underway.

RTD has also engaged a private firm specializing in naming rights and advertisements to generate additional revenues for RTD from its extensive property holdings. The private firm is analyzing opportunities and will be seeking solicitations following RTD Board approval.

RTD regularly evaluates opportunities for partnerships and privatizations. RTD entered a leasing arrangement for its Denver Union Station historic building featuring a 110-room hotel and several retail and commercial enterprises. RTD will share in revenues above a certain threshold while transferring the financial responsibility for operations, maintenance and capital replacement to the lessee. RTD continues to seek additional partnerships and privatizations when such arrangements are mutually beneficial.

Resources

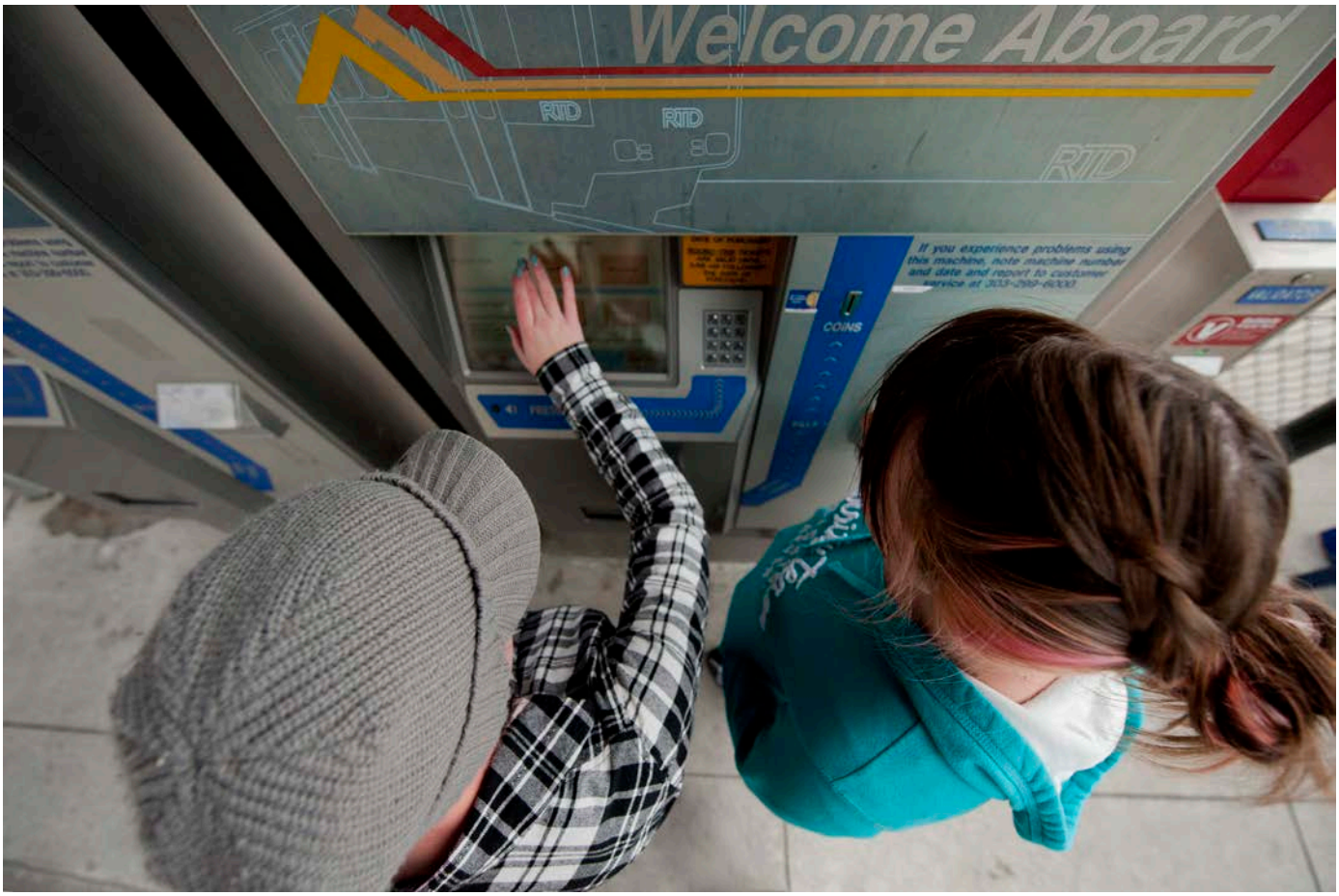
2011 Fiscal Sustainability Task Force Report

Departments

Finance (Finance & Administration)

Contact(s)

- Douglas MacLeod, Controller



Goal

Reaffirm Fastracks' total estimated cost (estimate-at-complete) forecast, and ensure that RTD does not commit to projects that the agency cannot afford to fund.

Background

The Annual Program Evaluation initially was designed in response to the future construction cost uncertainty and Great Recession's effect on the sales tax receipts that endangered the FasTracks expansion. It has evolved into an internal annual planning document and tool for Capital Programs.

The FasTracks Plan in 2004 estimated that the entire FasTracks program could be delivered for $4.7 billion in capital costs with $3.3 billion in finance costs through 2048 and $1.5 billion in operating costs through 2025. In 2007, in response to resolutions passed by the Denver Regional Council of Governments (DRCOG) and the RTD Board of Directors, RTD staff initiated a process known as the Annual Program Evaluation (APE) to analyze the revenue, scope, and cost assumptions for FasTracks, such as material, labor, equipment, and inflation. During the first APE, RTD discovered that the estimates used for the original FasTracks Plan when incorporating new alignments for the corridors, negotiations with the railroads, the number of right-of-way (ROW) acquisitions, extraordinary inflation in material prices, and existing conditions associated with utilities, drainage and environmental requirements had increased the cost to deliver FasTracks dramatically.

Best Practice

To ensure that RTD has a flexible plan to deliver FasTracks within the range of likely outcomes, RTD has implemented a combination of refinements to develop alternate sources of forecasts and examine a wider range of outcomes. The APE allows RTD to:

- Provide a range (best-case and worst-case cash flows) of potential sales and use tax collections, rather than an exact figure, for longer-term projections, and perform sensitivity analyses within the range.
- Investigate additional alternative sources for long-term economic projections and sales tax forecasts.
- Educate stakeholders and the public on RTD's sales and use tax forecasting methodologies, and the differences between short-term (3-4 years) and long-term (15+ years) forecasts.
- Emphasize more clearly that long-term growth projections are averages, rather than exact forecasts of annual growth rates.

Recent APEs feature input from the Cost Escalation Task Force (DRCOG, CDOT, RTD, and other member agencies). This group analyzes and discusses cost trends, both locally and nationally. Additionally, a local economist was retained to focus on local industry cost trends while the chief economist from the Associated General Contractors of America (AGC) provides valuable input on national cost trends and economic factors that could potentially affect the FasTracks program. RTD has also used the input of local economists to aid in sales tax revenue projection and ensure that update actual and estimated (forecast) program costs and revenues can be used for management decisions on how to deliver the remainder of the program. The APE gives RTD a more accurate budget forecast to allocate required funds for the upcoming financial year.

Results

The 2007 APE yielded a revised Estimate-at-Complete (EAC - a projection of total cost at completion) in Year of Expenditure (YOE) dollars of $6.1 billion. The subsequent APEs of 2008 through 2012 continued to vary in concert with the volatile economic trends, and became more stable each successive year, as projects commenced construction with committed contract values and ROW purchase prices.

In the years (APEs) leading up to 2012 elections, RTD's staff and board assumed that a ballot initiative for increased sales tax revenues would be necessary in 2012 to cover the gap between the total program EAC and current realistic projections of all FasTracks funding sources. This assumption was carefully considered against public appetite (measured with public surveys/opinion polls) and it was determined that such a tax initiative had less than the minimum required likelihood of success. Therefore, RTD chose to change the APE strategy from 2012 forward, to only focus on forecasting Estimate-at-Complete for projects that had committed funding per the RTD Board-adopted FasTracks financial plan.

Resources

2004 FasTracks Plan

2009 Lessons Learned Report

2012 Lessons Learned Report

Departments

Capital Programs

Contact(s)

- Susan Cohen, Manager, FasTracks Program Controls
- Sean VonFeldt, Manager, FasTracks Project Controls

Goal

Determine the effectiveness of FasTracks management plans and procedures, identify gaps, and promote continuous improvement.

Background

In 2004, prior to FasTracks, RTD and the Colorado Department of Transportation (CDOT) jointly applied for the Colorado Performance Excellence Award (now known as the Rocky Mountain Performance Excellence Award). One of the opportunities for improvement identified in the Feedback Report was for RTD and CDOT to implement a process to systematically measure their own performance. Around that same time, RTD received feedback from the Federal Transit Administration's (FTA) Project Management Oversight Consultant, Urban Engineers, that RTD should implement internal audits for the West Corridor Environmental Impact Statement (EIS) project. Given the feedback from both of these sources, RTD determined that a robust internal quality audit program would be implemented during FasTracks.

Best Practice

Currently, RTD conducts internal quality audits through a sub-consultant to the Quality Management Consultant (QMC), who maintains organizational independence from all other aspects of the FasTracks program and is professionally certified in the practice of quality audits. All internal quality audits are conducted in accordance with an approved quality procedure that is based on the international standard ISO 19011, "Guidelines for Quality and/or Environmental Management Systems Auditing." The internal quality audit program includes the following elements:

- Annual schedule, reviewed with senior management and revised as needed
- Audit scoping meeting between the auditor, QMC Program Manager, and Director of Quality Assurance
- Written audit plan
- Formal audit notice to the auditees
- Opening and Closing meetings
- Formal audit report
- Improvement actions (when needed) and surveillance to follow-up on improvement actions

Results

Since 2006, RTD has conducted 45 internal quality audits at the FasTracks program and project level. These audits have identified 23 improvement actions, which have led to continuous improvement in RTD's Capital Programs project management approaches.

Resources

2013 Lessons Learned Report

Departments

Capital Programs

Contact(s)

- Kevin Diviness, Director of Quality Assurance

Goal

Increase flexibility when dealing with projects, including when projects require changes mid-stream, in order to keep costs low and finish projects on schedule.

Background

In 2001, RTD and the Colorado Department of Transportation (CDOT) began construction of the Transportation Expansion (T-REX) Project – a $1.67 billion highway expansion and light rail project. The complexity of the road, bridge and transit project and the use of a design-build delivery method meant delay in decision-making might affect the partner organization and increase the contract cost. Prior to T-REX, RTD maintained control over project-level construction decisions at the executive or Board of Directors level. Driven by the necessity of nimble decision-making in that large partnership, RTD began a process of decentralizing project management that has continued with significant success as RTD oversees FasTracks' multiple construction corridors. Balancing program-level obligations with the need for nimble decision-making at the project level has helped Capital Programs maintain project schedules and budgets to deliver FasTracks projects in a timely manner.

Best Practice

The decentralized approach begins at the policy level with the RTD Board of Directors. For major corridors, the RTD Board has given the General Manager authority to enter into contracts, purchase orders, blanket purchase orders, work orders, and agreements up to the total budget for the project. The General Manager in turn delegates this authority to the Assistant General Manager (AGM) of Capital Programs, who has further decentralized decision-making for the FasTracks program, pushing decision-making authority to the lowest appropriate level. This has empowered the project staff to make major decisions and commitments, commensurate with the intense pace of the projects. The Board is updated on a regular basis so that they remain engaged in the progress and issues of the project.

RTD decentralizes decision-making under the belief that those closest to the problem are best able to understand the issue, and should be able to make a quicker, better-informed decision than those at the program level. Staffing project offices with the right people to effectively do the work and make expeditious decisions is critical to the FasTracks approach to decentralized management. As part of the project management plan, Capital Programs develops ladders of escalation for each area of the project, pairing leads from RTD, the contractor and applicable local officials at the task force co-leads, manager, project manager, senior management and executive levels (see example below). When counterparts at any level cannot agree on a path forward the issue is automatically escalated to the next level. Program-level guidance is always available to provide assistance as necessary, and the exact personnel involved in the escalation may vary depending on the issue.

The project management plan gives the project manager authority over critical aspects of the project, including responsibility for delivering the project on time and on budget, responsibility over all staff allocated to the project, and project support functions such as quality assurance, operations, and safety. Program managers outside of the project team participate in project-level reviews of budget, schedule, quality and other aspects of the project. This approach allows senior management to focus on critical program-level issues.

The FasTracks program management and each project management plan are designed to ensure adequate, competent resources are provided at the project level. Project-level personnel are encouraged to seek advice when their decisions affect other projects, or when they are not able to come to a satisfactory solution at the project level.

Example: I-225 Project Collaborative Escalation Ladder **(June 2014)** *abbreviated*

	Design and Construction Task Force Teams							
Level	**ROW**	**Dry Utility**	**Drainage/Wet Utilities**	**Civil/Track**	**Structures**	**Stations Architectural Landscape**	**Fire-Life System Safety**	**Systems**
1 **Task Force Co-Leads**	Susan Altes (RTD) Terry Tyrrell (AECOM) Joshua Nitz (Kiewit) Joani Cravens Aurora	Utility Owner Reps Greg Jeppesen (RTD) Tom Fuentes (AECOM) Roger Weathers (Kiewit) Charlie Cooper Aurora	Greg Jeppesen Drainage Eng. TBD RTD Tom Fuentes (AECOM) Roger Weathers (Kiewit) Brad Richardson Aurora	Erik Haugen (RTD) Terry Tyrrell (AECOM) Martin Brown Nate Schanne (Track) Kiewit Brad Richardson Aurora Lead	Jack Vaughn (RTD) Steve Haynes (AECOM) Keith Spolar (Kiewit) Brad Richardson Aurora	Susan Johnson (RTD) Steve Wilensky (AECOM) John Zegarski Les Nyland (Kiewit) John Fernandez Aurora	Bob Pitts (RTD) Suzanne Reese(IEI) Mike Monroe (Kiewit) Mike Dean Dirk Anderson Aurora Steve Buemer Asst. Fire Marshall Aurora	Altagracia Jager (RTD) Gordon MacDonald (HMM) Derrek Freeseman (Mass Elec) Al Fedderson Aurora
2 **Mgr**	**Design Issues** Paul Von Fay, RTD Danielle Smith, RTD Sonya Dupuis, Kiewit Robert Kennah, AECOM Brad Richardson, Aurora							
3 **PM**	**Project Management Team** Chuck Culig, RTD Roger Ryburn, Kiewit Rick Romig, AECOM Cindy Colip, Aurora							
4 **Sr. Mgmt**	**Senior Management Team** Pranaya Shrestha/Rick Clarke, RTD Roger Ryburn, Kiewit Dave Chambers/Nancy Freed, Aurora							
5 **Exec**	**Executive Team** Phil Washington, RTD Craig Briggs, Kiewit Skip Noe, Aurora							

FasTracks maintains program-level oversight through regular internal audits and senior management reviews of project budget, schedule, quality, engineering standards, etc. The RTD Board assigns full contractual and schedule authority to the General Manager. The General Manager delegates this authority to the AGM of Capital Programs, who then sets approval and authority levels for the project manager. The levels are high enough to limit opportunities for micro-management by the program office, but sufficiently low so that the senior manager of program management and AGM of Capital Programs are involved in all major changes.

Results

RTD has historically completed each of its corridor construction projects on time and within budget, in part due to the decentralized approach, which allows project teams to address most issues. Only significant issues are escalated to upper management, including the General Manager, which allows them to focus on the big picture.

Resources

2009 Lessons Learned Report

2010 FasTracks Program Management Plan

2013 Lessons Learned Report (Internal Only)

2007 T-REX Lessons Learned Report (Internal Only)

Departments

Capital Programs

Contact(s)

- Richard Clarke, Assistant General Manager of Capital Programs

Goal

Implement system-wide information technology (IT) project management processes to prioritize strategically, increase efficiency, and improve responsiveness to the business units.

Background

In 2013, an internal audit of Information Technology products identified gaps in consistent project management processes. The audit revealed that a key system had data integrity issues and had not been implemented properly.

After the audit, IT codified a project flow that incorporated FTA System Engineering guidelines and Project Management Institute (PMI) standards based on the Project Management Body of Knowledge (PMBOK). A workflow outlined responsibilities for IT, project managers, business analysts, and the project sponsors within the business units. Since that time, IT has been working to improve project prioritization and implement that process.

Best Practice

The project management process consists of five key elements:

1. Initiation: The project sponsor in the business unit determines that they need a project, identifies the applicable executive sponsor (an Assistant General Manager, or AGM), and enters a project request into The Pulse (Innotas portfolio and project management system). Ideally, there should be only one executive project sponsor. The Pulse is the same system used for budgeting at RTD, so business owners are familiar with the process and software. IT works with the business unit to understand project activities and identify the desired outcomes and business requirements. IT and the business unit focus on desired outcomes rather than a particular software solution at this point in the process. IT and the business owner work together to outline the project's goals, or "desired future state," and describe the current state.

2. Plan: IT works with the business unit to develop a project charter. The project charter delineates responsibilities, lists the project customer(s) and sponsor(s) and the project manager, describes the purpose of the project, and outlines roles and responsibilities of any contractors, including a checklist if necessary.

3. Execute: The IT Program Management Office (PMO) works in concert with all stakeholders as they design and build the solution, create an operations plan, and plan implementation and training. Working with the business units, IT business analysts develop and refine requirements and deliverables as the project advances through the execution phase.

4. Control and Monitor: IT and PMO conduct testing including quality assurance testing and user testing and update the operations plan as needed. At the end of this phase, the system is ready for implementation.

5. Close: IT and PMO implement the system and conduct a post-implementation review to ensure that the system meets the needs of the business unit. Ideally, IT conducts a lessons learned exercise at the end of the process to improve future outcomes.

Throughout the process, IT and the IT PMO make data available to the business units through dashboards available via The Pulse. A link to the dashboards is provided in the email signature of members of the PMO group. Individuals throughout the organization can see the number of hours spent on each IT project via that link.

Results

The IT department has phased in the implementation of the project management processes. In practice, IT found that the process would work best if business analysts worked within the PMO. Since December 2014, three business analysts have been re-assigned from other parts of IT to project management, and one more business analyst will be hired in spring 2015. Business analysts will work with owners from the business unit to ensure that IT is meeting customer needs.

IT is also currently working to prioritize projects effectively. The IT division conducted a charrette in 2014 to determine a vision and mission statement, which has helped set priorities for the entire division. The division works with the IT governance board, which consists of every AGM, the senior manager of civil rights and the senior manager of materials management, to determine which projects should be priorities. The IT department's technical architecture governance (TAG), which consists of operational managers in the IT department, also reviews projects to identify priorities and assure the projects are consistent with RTD's technology roadmap. Current priorities include providing real-time information, SmartCard, and critical maintenance and system refreshes.

Resources

IT Project Management Office

IT Project Status Dashboards in The Pulse

FTA Transit Research & Technology: Application Instructions And Program Management Guidelines

Project Management Institute: Project Management Body of Knowledge IEEE Guide to the PMBOK

Example RTD Project website

Departments

Information Technology (Finance & Administration)

Contact(s)

- George Hovey, Manager, Program Management Office

Goal

Optimize the financial resources of RTD and maintain a competitive benefit package for RTD employees.

Background

In 2009, RTD faced considerable financial challenges with sales tax revenues reduced by the Great Recession and the costs to construct FasTracks escalating. To save money and maintain the existing workforce, the District implemented a salary freeze for all salaried RTD employees. RTD's Human Resources (HR) Benefit Team recognized that increases for health insurance benefits were becoming a significant drag on the financial resources of the agency: costs had increased 10% or more each year for several years consecutively. To preserve the earning power of employees, the HR Benefit Team explored multiple options on how to preserve current benefits and minimize the cost impact to RTD.

In 2010, Human Resources conducted an analysis and audit of all benefits plans: PPO, HMO, and High-Deductible HMO Health Plans, Heath Savings Accounts (HSA), Flexible Spending Accounts, Life and Vision Insurance. The analysis determined that RTD had not encouraged competition by going out to bid for its plan providers in many years. Additionally, benefits management lacked any plan documentation and functionally made decisions about approvals or denials of coverage on a case by case basis, resulting in arbitrary and sometimes contradictory decisions, a potential compliance concern. The analysis also determined that RTD's share for benefits costs were significantly higher than standard industry practice.

Best Practice

To control costs, RTD created a self-funded program for health and dental plan offerings for salaried employees that provides employees access to networks but requires higher employee contributions for services – ideal for people who rarely need health care. RTD maintains stop-loss insurance to isolate its own exposure in this plan. New plan designs were also implemented, providing a consumer-driven full insurance health plan for RTD salaried employees where enrollees experience a set premium regardless of the number or amount of claims. Human Resources also implemented an hourly contract agreement with a health and welfare broker rather than provider, rather than a lump sum as had historically been the case.

The most significant barrier to changing benefits was simple resistance to change among RTD employees. The plans had not changed for an extended time and the company-provided cost share was generous compared to industry practices. In the first year of the overhaul, Human Resources elected not to change cost sharing since the salary freeze was still in effect. It was decided that changing plans and requiring a higher contribution from employees would be too drastic a change. The changes were rolled out first to plan and, later, to cost sharing.

Results

The new plans enable RTD to track and project actual costs versus expected costs and adjust the self-funded plan design as employee claims change. Through the use of an hourly rate for the broker, RTD has saved at least $50,000 annually. Cigna was selected as the health insurance Third Party Administrator (TPA), and the savings to RTD over five years is in excess of $10 million. Delta Dental was selected as the TPA for dental insurance offerings, and the savings to RTD is in excess of $500,000. The health plan offerings for RTD salaried employees have been enhanced, and the employee cost-sharing has not increased since 2008.

Resources

Employee Benefits (The Hub)

Department

Human Resources (Finance & Administration)

Contact(s)

- Sylvia Francis, Manager, Total Rewards
- Cherie Sprague, Senior Human Resources Executive

Goal

Optimize the investments of RTD employees in order to save money.

Background

In 2012, as part of due diligence, RTD's Total Rewards Manager determined that the agency had never conducted a competitive analysis or request for proposals (RFP) for vendors of the organization's 457 plan in the plan's 20-year history. She realized that RTD and the Human Resources Division had a fiduciary responsibility to have a competitive RFP for administration. Human Resources conducted an analysis of the fees charged by the two 457 Third Party Plan Administrators and the asset charges assessed within the investment portfolios of each of the vendors, Hartford and Valic. In comparing these fees and asset charges to the typical market fees and assets, the Human Resources Division discovered that RTD employees were incurring excessive costs, diluting the overall return on their 457 contributions. The agency also lacked an established investment committee to provide independent oversight of the investment fund portfolio offered to employees. The Human Resources Division initiated a competitive bid process for administration of the 457(b) Retirement Plan and for a third party investment advisor.

Best Practice

The RTD Total Rewards Manager routinely conducts an annual audit of the 457 Plan. The asset fees and charges assessed are closely analyzed to ensure reasonable asset charges are assessed based on aggregate contributions, according to contract provisions. Each quarter, the Investment Committee evaluates the portfolio of funds offered to RTD employees and ensures there is an appropriate mix of funds. RTD hired Lockton to conduct the RFP for the 457(b) Plan. Lockton was selected to provide quarterly analysis of the Investment Funds to the RTD Investment Committee.

Results

The change in vendors resulted in an increased value in employee accounts, and significantly reduced the costs in asset charges and administrative fees, saving RTD employees more than $300,000 annually. RTD also established an Investment Committee to review the investment portfolio quarterly to insure employees are offered reasonable investment offerings, reasonable fees, and reporting compliance.

Resources

Human Resources on the Hub

Departments

Human Resources (Finance & Administration)

Contact(s)

- Sylvia Francis, Manager, Total Rewards
- Cherie Sprague, Senior Human Resources Executive

Goal

To assess the status and adequacy of RTD's Quality Management Oversight (QMO) program and identify improvement actions when necessary.

Background

The FasTracks QMO program is registered to the international standard ISO 9001:2008, "Quality Management Systems Requirements," which requires management reviews. The standard states that:

"Top management shall review the organization's quality management system, at planned intervals, to ensure its continuing suitability, adequacy, and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives. Records from management review shall be maintained." (ISO 9001:2008, Clause 5.6.1)

The standard also describes specific review inputs such as results of audits, customer feedback and status of preventive and corrective actions. It also describes specific review outputs resulting from the review, including decisions and actions related to improvement of the effectiveness of the quality management system and its processes, improvement of the product, and resource needs.

Best Practice

The RTD FasTracks team has performed quarterly quality management reviews since December 2005 at the FasTracks or program level. During these reviews, senior managers review inputs such as the design review, construction verification inspection, materials testing, and audit results; improvement actions; training needs; and other information, based on the goals for the quality oversight program. This promoted discussion and decisions to improve the QMO program, improve work product outcomes, and improve resource needs for the QMO program.

In 2010, one of those discussions led to a management decision to conduct separate project-level quarterly quality management reviews for the West Rail Line, Denver Union Station (DUS), and Eagle projects. The FasTracks program-level quarterly reviews have continued but are more focused on program-wide QMO activities and smaller projects.

Results

Since 2005, there have been quality management reviews resulting in a wide range of program improvements, and a heightened level of confidence for senior management in the quality program results. Since 2010, there have been an additional 37 quality reviews at the project level. The project level quarterly quality management reviews have resulted in many benefits to the projects, including a greater awareness and engagement by participants, better understanding of the objectives and processes for quality management oversight, identification of specific improvements to project quality issues, enhanced discipline in performing QMO activities, and enhanced leadership commitment to implementing and improving the QMO program. Conducting management reviews on a quarterly basis at the project level to review the results of oversight activities and enable decisions to be made has improved the effectiveness of the oversight program.

Resources

2013 Lessons Learned Report

Departments

Capital Programs

Contact(s)

Kevin Diviness, Director of Quality Assurance

Goal

Ensure that new bus operators are thoroughly prepared for the job.

Background

RTD provides extensive initial training programs for bus operators. When there is enough staff, training lasts eight weeks; currently, as the agency is short on staff, training lasts seven weeks.

Best Practice

RTD provides seven weeks of paid training for new operators. New operators begin driving a bus on their first day in training. They gradually spend more time behind the wheel and with customers over the course of the seven-week training program. Classroom training is alternated with driving to provide a mix of theoretical and hands-on experiences each day. Each instructor takes two new operators on the bus for driving experience so they get extensive individual attention from instructors. Training for the CDL exam and the exam itself are included in the program. RTD administers the CDL exam onsite and has eight certified CDL instructors on staff. In addition to the CDL, training covers the Trailblazer (RTD's guide to routes and policies for bus operators), fares, customer service, and map reading.

Extensive Americans with Disabilities Act (ADA) training is included in the program. In one of the later modules, new operators work with disabled passengers through the Craig Hospital, King Adult Day Enrichment Program, as well as a visit to the Atlantis independent living facility and a presentation from their staff. In addition, RTD gives an overview of the different disabilities that an operator may encounter in service. The training also outlines the history of the ADA and RTD's leadership in providing accessible transportation. In ensuring compliance with the ADA, an ADA presentation is given outlining RTD policy. RTD's training department also collaborates with different groups, representing the disabled community, such as the Colorado Cross-Disability Coalition (CCDC) and the Denver Regional Mobility Access Council (DRMAC) to address barriers that affect riders with disabilities that use fixed-route service. The RTD training department has also reached out to senior centers, high schools and individuals with disabilities, in conjunction with VIA travel training, to teach them how to ride fixed-route bus service. Operators learn to assist passengers with disabilities and brush up on customer service skills, while riders learn how to become comfortable alighting and de-boarding the bus.

There are three types of instructors at RTD: "Revenue Instructors" drive regular bus routes as well as train new operators in the classroom and on their routes. "Non-revenue instructors" train operators in the classroom and may also drive their regular routes. "Full-time instructors" are assigned only to the training department and do not drive a bus route. All instructors must work as bus operators for at least one year before moving into training.

Results

RTD's training programs have been lauded by operators in multiple employee surveys. In an operator survey in 2011, operators rated initial training programs highly. In a 2015 employee survey, operators rated training more highly than any other category on the survey except for safety.

Departments

Bus Operations

Contact(s)

- Alice Osner, General Superintendent, Transportation
- Daniel Seifert, Assistant Manager, Transportation Operating Division

Workforce

Choosing whether to outsource responsibilities or hire staff is a challenge for many organizations. Over the past few years, RTD has re-evaluated those options for many functions across the agency. RTD has found that either option – or a combination – can be effective depending on the circumstances. Contracting services has been cost-effective in some cases, but the agency has found ways to save money and increase quality by bringing services in-house in other cases.

The following best practices discuss the advantages of contracting or moving responsibilities in-house, the ways RTD has made the decision whether or not to outsource a service, and the types of investments that must be made in each case. From working with large bus companies to contract out essential services to ensuring the highest quality in drug and alcohol testing by using in-house staff to outsourcing para-transit services to increase accessibility, these best practices show that RTD is dedicated to finding the combination of in-house staff and contractor relationships that will optimize cost-effectiveness and quality. These best practices can offer templates for RTD departments and other transit agencies that are grappling with similar considerations.

Goal

Provide seamless rubber-tire service to customers while ensuring RTD receives the best possible value from contractors and that contractor performance is consistent with RTD's own standards.

Background

The Colorado State Legislature passed a bill in 1989 requiring RTD to contract out at least 20% of fixed-route services. Later, the legislature raised the bar to 35%, and then to 50% of all rubber-tire service (including fixed routes, paratransit, and call-n-rides). More recently, the state legislature significantly modified the requirement: RTD is no longer required to contract out any services, and cannot contract more than 58% of rubber-tire services. After the legislature began requiring RTD to contract out services, the agency began hiring staff to monitor and oversee contracted services.

Up until the mid-2000s, RTD and the contractors ran uneven service, and there was strong distrust of contractors among RTD employees, both operators and management. In the late 1990s, RTD hired a contractor based on a low bid that had to be terminated within 30 days because their service was so poor.

Best Practice

Since the early 2000s, RTD has implemented a series of policies that have improved both contractor performance and the relationship between the agency and the contractors.

First, RTD lobbied for legislation that would allow the agency to choose contractors based on the quality of service rather than price alone. That policy change has meant that RTD has the power to select contractors who will offer service comparable to the agency's own. In addition, it opened the door for requiring contractors to meet ambitious performance standards (Key Performance Indicators or KPIs).

Second, RTD established a senior manager position to oversee all contracted rubber tire services, including fixed-route, paratransit, and call-n-ride services. The first person to have that position, who later became Assistant General Manager of Bus Operations, had a background with transit contractors, and began implementing changes that would allow RTD to hold contractors to a higher standard.

Third, Bus Operations began to emphasize open communications between RTD and contractors. For example, contracted services and bus operations began holding regularly meetings between contracted services management and trainers and RTD management and trainers. Currently, they hold four different regular meetings to review performance statistics, share knowledge and updated policies and procedures, and ensure that all parties are consistent in their approach to maintenance, training and operations. Managers from the contractors are also invited to RTD Bus Operations managers' meetings. RTD has found that when representatives from the contractors are in the room during meetings, RTD management shows a better attitude toward contractors.

Finally, RTD began holding contractors to the same standards as in-house operations. RTD uses identical KPIs for contractors and the agency. Contracted Services has worked to ensure that contractors are reporting consistent numbers, so that anyone from either organization can open tracking software such as Maximus and see the same data. Ensuring that contractors' numbers are consistent and accurate has reduced the amount of criticism of contractors from RTD, and contributed to changing the culture.

Contractors have been receptive to the KPIs, because it provides them with consistent direction and standards and they understand how RTD is judging their performance. In addition, contracted services staff report that contractors appreciate being held to the same standard as the agency, because they felt that being held to a lower standard made them seem less competent.

RTD has also tried to be a good partner to contractors. For example, in the past, RTD required contractors to purchase their own buses, but contracts would only last for five years. Today, RTD purchases buses and leases them to contractors, and ensures that contractors receive a similar fleet to RTD (that is, buses of roughly the same make and age). RTD also solicits feedback from contractors before releasing a request for proposals (RFP) for buses.

Coincidentally, RTD's two major contractors, TransDev and FirstTransit, have recently unionized with the same union that represents RTD employees (Amalgamated Transit Union, ATU). Unionization has contributed to an improved relationship between RTD and contractors because union leadership now sees contracted services as part of their own organization rather than outsiders. Although the contractors are unionized, the collective bargaining agreements (CBAs) still allow for more flexibility than RTD's CBA.

RTD also regularly monitors contractors to ensure that performance is up to agency standards. RTD reviews training records and hiring records and conducts pull-out checks and undercover ride checks of contracted services.

Results

Although RTD is no longer required by law to contract out services, the agency continues the practice because of the value they receive from private contractors. For example, contractors are able to provide affordable service due to efficient practices in employment (due in part to a relatively flexible CBA and flexibility in scheduling) and maintenance. Because RTD carefully tracks the performance of contractors, the agency can be sure that their standards are acceptable and that customers experience seamless service. For example, RTD requires certain types of maintenance while recommending other maintenance to contractors, but contractors and RTD have similar numbers of miles between road calls (a KPI). While contractors pay their operators a lower hourly rate than RTD, some operators prefer contractors because they attain seniority faster, have more flexibility in scheduling, and work with a smaller operation.

At times, RTD adopts best practices from contractors. For example, one contractor began adding event recorders to buses, and RTD saw the value and eventually adopted the practice for in-house operations. Because RTD's two major contractors, FirstTransit and TransDev, are major international companies with extensive experience in transit, their staff has often worked in many different cities across the industry, and can contribute helpful suggestions to RTD's in-house operation.

Currently, the Contracted Services Division is developing their own policies and procedures manual, which they will share both in-house and with contractors. They are also in the process of creating desk manuals for each employee to provide for knowledge transfer in case of retirements and ensure that new employees have guidance in their jobs.

Resources

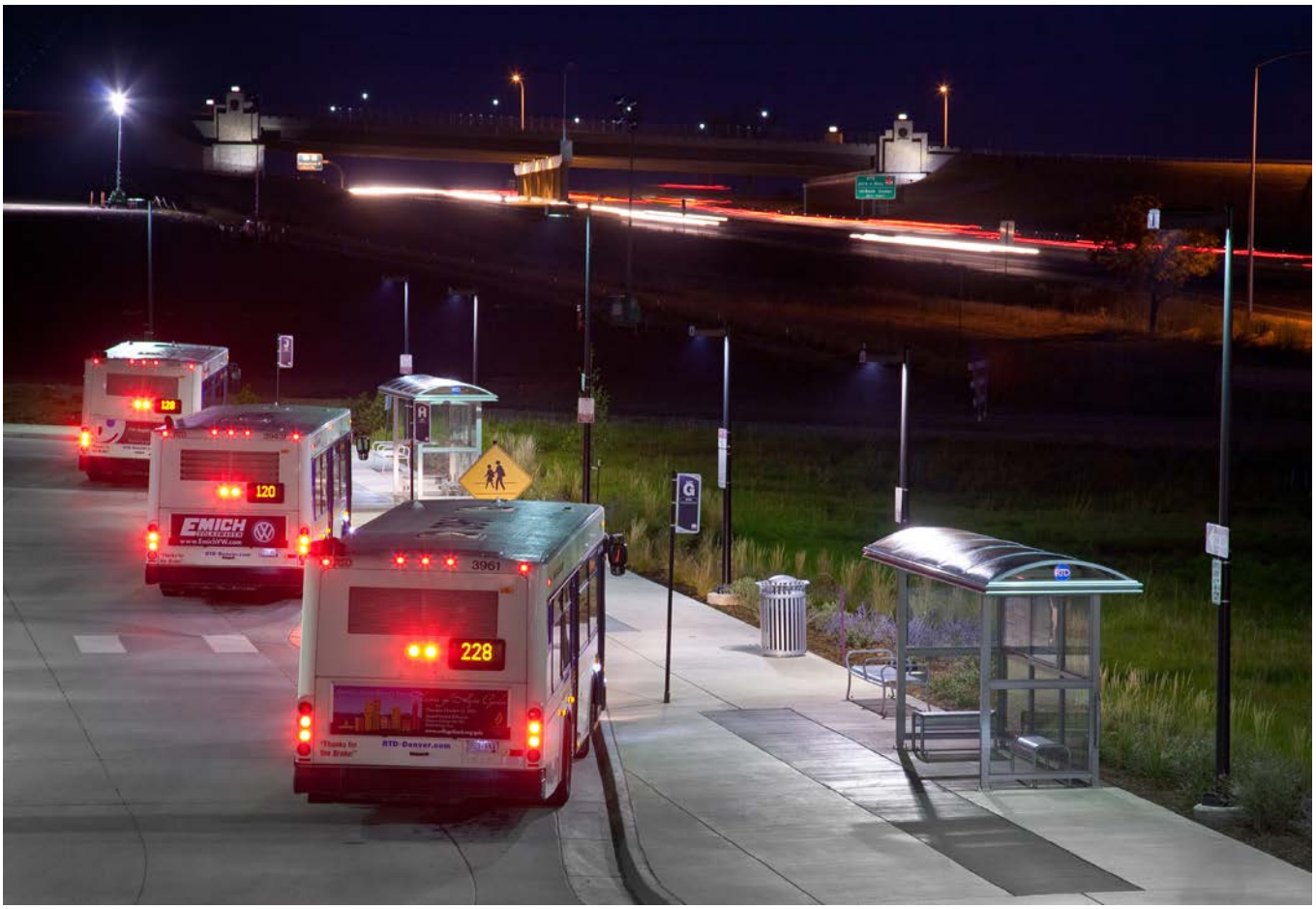
Regional Transportation District Act, Colo. Rev. Stat. § 32-9-119.5 (August 31, 2012)

Department

Bus Operations

Contact(s)

- Bruce Abel, Assistant General Manager, Bus Operations
- Carolyn Conover, Senior Manager, Contracted Services



Goal

Provide employees with the knowledge and skills needed to succeed in their current position and develop supervision, management, and leadership skills.

Background

There are currently seven individual Learning Paths ranging from entry into the transit industry up to executive leadership training. Each Learning Path includes a series of required classes which are offered in-house to all RTD employees. In addition, Learning Paths include a series of external individual courses and leadership certificate programs as well as established transit-oriented learning programs. RTD employees can pay for external individual courses and seek tuition reimbursement through the represented employees' Education Development Plan (EDP) or the Professional Development Program (PDP) for salaried employees. Depending on the availability of funds, the District may reimburse an employee up to $2,000 per calendar year for pre-approved course work, seminars, or other development activities that will improve their work skills, increase their knowledge, and enhance their future contributions to the District.

Best Practice

Core Classes

While other transit agencies typically purchase off-the-shelf training materials, RTD has on-staff instructional designers who create courses specifically designed to address RTD's needs. RTD designed the Crucial Conversations and Crucial Accountability courses to help employees develop tools to handle difficult and important conversations as well as to prepare participants for high-stakes situations with proven techniques. Core classes also include a full-day District Tour, Ethics for Public Transit, Generations, which addresses generational barriers and the strategies to overcome them, and a Terrorist Activity Recognition course designed to provide the skills and knowledge to enable employees to know how to identify and report pre-attack terrorist activity. All salaried employees are required to complete the core courses within two years of hire. Represented employees are only required to take the Terrorist Activity Recognition course but may enroll in any additional course.

Leadership Training

RTD has a multi-layered approach to training the next generation of leaders in the organization. Supervisors and managers have additional training requirements including Core Skills for Managers and Supervisors, Basic Labor Relations, and Transit Coach, which explores the options for improving business coaching. The training also includes a class entitled Meet the Challenge that focuses on regulatory issues in the areas of the drug and alcohol policy, employment law, equal employment opportunity (EEO), and workplace violence. As managers move up the organizational ladder additional courses in performance management and appraisal and presentation skills are required.

RTD has also developed a robust leadership program that gives employees the opportunity to participate in a year-long internal Leadership Academy, learn best practices from peer agencies through the Multi-Agency Exchange Program (MAX), and, later, serve as a mentor to a Leadership Academy participant.

Candidates for senior and executive leadership are encouraged to participate in the Eno Leadership Development Conference, Eno Foundation Transit Executive Seminar,

Leadership APTA (offered by the American Public Transportaton Association) and the Women's Transportation Seminar (WTS) Leadership Development Program.

Results

To date, 79 employees have been accepted into RTD's Leadership Academy. Thus far, 14 individuals have been promoted into leadership positions that have more responsibilities than their prior positions required. One current participant has been selected for the Eno Foundation Transit Executive Seminar later this year.

In the third year of the MAX Program, 18 employees have successfully completed the program, and an additional eight employees are scheduled to complete this year's program in October. Three of the participants have been accepted into Leadership APTA: one has graduated, one is currently participating, and one will begin the program in January 2015.

Below is a detailed description of each of the Learning Paths:

Intern Development

- Crucial Conversations
- District Tour
- Terrorist Activity: Recognition and Development
- The Effective Job Search: From Resume to Interview

Employee Development (All salaried employees)

- Crucial Conversations (two years to complete)
- District Tour (six months to complete)
- Ethics for Public Transit (two years to complete)
- Generations: Finding Common Ground (two years to complete)
- Crucial Accountability (two years to complete)
- Terrorist Activity: Recognition & Reaction (one year to complete)

Mid-Level Leadership (Supervision)

- Crucial Conversations (two years to complete)
- District Tour (six months to complete)
- Ethics for Public Transit (two years to complete)
- Generations: Finding Common Ground (two years to complete)
- Crucial Accountability (two years to complete)
- Terrorist Activity: Recognition & Reaction (one year to complete)
- Meet the Challenge (one year to complete)
- Core Skills for Managers for Managers and Supervisors (one year to complete)
- Transit Coach (two years to complete)

Mid-Level Leadership (Management)

- Crucial Conversations (two years to complete)
- District Tour (six months to complete)
- Ethics for Public Transit (two years to complete)
- Generations: Finding Common Ground (two years to complete)
- Crucial Accountability (two years to complete)
- Terrorist Activity: Recognition & Reaction (one year to complete)
- Meet the Challenge (one year to complete)
- Core Skills for Managers for Managers and Supervisors (one year to complete)

- Transit Coach (two years to complete)
- Performance Management and Appraisal Workshop (one year to complete)
- Presentation Skills (one year to complete)

Labor Relations

(Managers and supervisors who work with represented employees)

- Basic Employee and Labor Relations for Managers and Supervisors (two years to complete)

Senior Leadership Knowledge Exchange

- Crucial Conversations (two years to complete)
- District Tour (six months to complete)
- Ethics for Public Transit (two years to complete)
- Generations: Finding Common Ground (two years to complete)
- Crucial Accountability (two years to complete)
- Terrorist Activity: Recognition & Reaction (one year to complete)
- Meet the Challenge (one year to complete)
- Core Skills for Managers and Supervisors (one year to complete)
- Transit Coach (two years to complete)
- Performance Management and Appraisal Workshop (one year to complete)
- Presentation Skills (one year to complete)
- Basic Employee and Labor Relations for Managers and Supervisors (two years to complete)

Executive

Completion of the following programs

- RTD Leadership Academy
- Multi-Agency Exchange Program (MAX)
- Serve as a mentor for a Leadership Academy participant

Completion of one of the following external Leadership Programs

- Eno Leadership Development Conference
- Eno Foundation Transit Executive Seminar
- Leadership APTA
- WTS Leadership Development Program

Departments

Human Resources (Finance and Administration Department)

Contact(s)

- George Kuzirian, Manager, Education, Training & Development,
- Richard Petty, Senior Education, Training & Development Specialist
- Cherie Sprague, Senior Human Resources Executive

Goal

Fully comply with RTD policy and U.S. Department of Transportation (DOT)and Federal Transit Administration (FTA) regulations and consistently apply prescribed procedures while saving money for the District.

Background

FTA regulations require RTD to perform drug and alcohol testing for all RTD employees, volunteers, and contractors. With more than 2,200 safety-sensitive employees, maintaining a drug and alcohol-free workplace is essential for passenger and worker safety. RTD historically used external firms to perform drug and alcohol testing. In late 2012, an RTD audit of these contractors revealed none achieving 100% compliance due to lack of training and high turnover of collectors in the contracted clinics. Additionally, the audit identified 14 deficiencies in the review of Breath-Alcohol and Urine Collection Testing.

Program compliance requires the consistent use of certain criteria and skills. FTA does not recognize anything short of 100% compliance in all areas of program administration and breath alcohol testing procedures. If an agency does not achieve 100% compliance, they have 90 days to correct the deficiency. If the deficiency is not corrected, the agency may lose FTA funding. Urine collection procedures are the weakest link in the entire process. Overall compliance depends on those initial two elements. RTD's Substance Abuse/Office Services division predicted that contractors would significantly increase prices in the upcoming contract bid. These predictions were confirmed when an industry Request for Information (RFI) in 2013 revealed a best price of $160,000 to maintain the same level of service. Substance Abuse/Office Services adjusted the scope of the services to RTD experience (80% Division employees and 1,200 tests per year) and estimated that the true cost would be over $300,000 to actually implement at RTD with external testing contractors. Initially, RTD leadership wished to avoid adding additional staff, but evaluating the high cost convinced them to try another approach.

Best Practice

Substance Abuse/Office Services proposed that RTD bring the testing in-house. The team purchased its own testing equipment and supplies for $12,000 and hired two part-time testers for $30,000 each. Prior to hiring and training part-time testers, existing staff established the compliance and testing procedures and performed all tests. These early months required significant additional duties but enabled Substance Abuse/Office Services staff to hone their procedures through a train-the-trainer approach and ensure continuous education and implementation of best practices. These refined processes and procedures improved the consistency of results.

RTD has seen immediate results from in-house testing, including the ability to set exact procedures and ensure consistent application of the program. Consistency ensures staff treats every employee equally and without bias. Substance Abuse/Office Services staff has found that consistency, fairness, and the increased investment in human capital sends a message that RTD's goal of safety, including a drug- and alcohol-free workplace, is real, present, and here to stay.

Results

Most importantly, in-house control brought RTD to 100% compliance. In a recent FTA Drug and Compliance Office Review, RTD received FTA's first-ever deficiency-free collection site assessment. In addition, In-House Drug and Alcohol Testing has saved $250,000 over the anticipated cost to achieve full compliance with an external contractor in its first year of operation.

Additionally, Substance Abuse/Office Services staff implemented the use of 3D tamper-resistant stickers in testing to reduce the chances of fraudulent tests. The 3D stickers are produced by NovaVision, Inc., which does custom 3D strips that show "VOID" throughout the part of the strip that has been removed. They are used to show tampering with resources such as water or soap in restrooms during the testing.

RTD's successful in-house drug and alcohol testing program may soon spread to other companies and transit agencies. Encouraged by the early success of the program, Substance Abuse/Office Services staff may expand in-house testing to the contracted services partners in bus operations. The private contractors experience the same compliance and testing issues that RTD once did and could benefit from RTD's expertise to come into compliance. The Transit Safety Institute has been impressed by the program, and has requested that RTD develop materials to train peer agencies to stand up their own in-house testing facilities to emulate RTD's success.

Resources

Procedures for Transportation Workplace Drug and Alcohol Testing Programs

(49CFR Part 40)

RTD Drug and Alcohol Policy

Department

Human Resources (Finance and Administration Department)

Contact(s)

- Edin Memic, Manager, Substance Abuse/Office Services
- Travis Bussey, Supervisor, Substance Abuse/Office Services
- Cherie Sprague, Senior Human Resources Executive

Goal

Ensure RTD maintains safe, cost-effective service through a mix of RTD Transit Police staff and contracted security officers and an off-duty police officer program.

Background

Maintaining safety and security at transit facilities is a concern across the nation. Many transit agencies hire their own police force (some numbering into the hundreds), while others entrust all safety and security responsibility to private security firms.

In May 2004, the Colorado General Assembly granted RTD authority to operate its own police force. Rather than investing only in RTD police staff, the Transit Police Division has developed a hybrid approach with six RTD Police Officers and 20 additional RTD Division staff, contracted security officers and an off-duty police officer program. Peace Officer authority also improved collaboration with the many police departments across the District – enabling Transit Police to speak with city and county police on the same level.

Best Practice

RTD Transit Police see tremendous benefits in the way the division has developed since being granted authority as Colorado Peace Officers in 2004. As the Transit Police Division has grown with RTD rail expansions and adapted to the greater threat terrorism represents to transit facilities across the world, the hybrid approach has grown with it. The division's 26 employees and six police officers oversee safety and security in the District in collaboration with 140 contract security officers and augment their operations with 430 off-duty police officers from jurisdictions within the District. Currently, officers may only patrol within their own jurisdiction.

Results

The off-duty police officer program, in particular, has produced many beneficial results. Using part-time police officers improves Transit Police flexibility – the program uses city and county police officers at no more than 20 hours per week to patrol light rail, buses and transfer centers both in uniform and plain clothes. The collaboration with local police forces has also improved Transit Police relations with those police forces and improved local police understanding of the particular challenges related to safety and security at transit facilities.

Resources

Colorado Revised Statute 16-2.5-146 (see Public Transit Police Officers p. 27)

Department

Safety, Security & Facilities

Contact(s)

- John Tarbert, Transit Police Chief
- John Perry, Transit Police Commander, Field Operations

Goal

Improve financial control and quality of planning by maintaining control over modeling and simulation.

Background

During the 1980s, the Denver Regional Council of Governments (DRCOG), the Denver-area Metropolitan Planning Organization (MPO), performed all transportation modeling for the Denver metropolitan region. RTD disagreed with DRCOG's results and methodology regarding mode split (the choices travelers make between transit and automobile modes). RTD hired a consultant to investigate the demographic characteristics of existing riders so the agency could build a mode choice model that more accurately estimated the number of transit trips based on rider characteristics. This mode choice model was incorporated into the DRCOG travel model and its structure remains in use in DRCOG's trip-based travel model, "Compass."

Because travel demand and micro-simulation modeling are such specialized skills, many transit agencies contract out all modeling or use the local MPO model results. In those situations, any analysis requiring simulation or demand modeling either must go back out to bid for consultant support or rely on MPO staff and time. RTD has developed an in-house technical service department with skills in macro – and micro-scale modeling. This arrangement maintains institutional memory and historical model simulations, speeding up analysis, saving time and increasing cost efficiency.

Best Practice

While still contracting with consultants for some technical services, RTD Planning Technical Services staff manages operations-related short- and long-term technical studies for the development and refinement of bus and rail operations and cost models. Staff also provide direction on technical and complex functions with the travel model and coordinates with other RTD divisions and DRCOG in coding, calibration, and administration of operations and maintenance statistics and cost models.

RTD Planning Technical Services staff use TransCAD for macro-scale integrated travel modeling of all motorized modes of transportation including car, HOV, truck, bus, and rail movements. The results of these models feed into the long-range planning for capital projects with information such as forecast ridership at the system, corridor, route, and station levels. Planning Technical Services staff also uses VISSIM micro-scale simulations to perform analysis and test scenarios to improve bus and rail operations including station locations, signal priority, and preemption. TransCAD and VISSIM both are industry-standard software packages that allow for sharing of model inputs and outputs among RTD, DRCOG, consultants, and other parties.

Results

Maintaining the ability within RTD to build and apply micro- and macro-level models from start to finish has reduced costs and enabled Technical Services to deliver timely analysis. During the scope and value engineering exercise on the West Rail Line, Capital Programs and Rail Operations wanted to determine if the planned double-track alignment on the whole corridor could be reduced to single track and still maintain 15-minute frequency. The cost to construct double-track on the entire alignment threatened the entire project. Using both micro-simulation and macro-travel modeling, staff determined that RTD could operate the service with the reduction to single- track west of the Federal Center station. West Rail may not have begun construction without this change.

In-house staff also creates real flexibility in forecasting and simulation. Staff has modeled the operations on the Design-Build contract for the I-225 light rail construction. Through their analysis, an operational concern was identified early. With the early information, Capital Programs and Rail Operations staff could address the issue by adding a pocket track and purchasing additional vehicles, avoiding problems in delivering service.

Department

Planning

Contact(s)

- Brian Welch, Senior Manager, Planning Technical Services
- Lee Cryer, Project Manager II, Planning
- Lacy Bell, Project Manager, Planning

Goal

Improve bus reliability, safety, drive-ability and adaptability to local environment by designing technical solutions into new bus procurement and refurbishing existing buses.

Background

New buses are usually purchased using standard technical specifications developed by the American Public Transportation Association (APTA). The standard specifications are generic and designed to serve the needs of a variety of different transit agencies. Many of the features required in the standard specifications are not suitable for the local environment or a particular operational requirement. In past practice, RTD had used these standard specifications, with minor modifications, in an attempt to fit the buses better to the operating environment at RTD. In the late 1990s, the Bus Maintenance division recognized that it could expand the customization effort to improve bus performance in its environment, and address known operating issues using the expertise, knowledge and experience of in-house personnel. To bring this experience to bear, RTD Bus Maintenance encouraged the in-house design team to add their proposed solutions into the requirements for new bus procurements. Historically, RTD senior management has relied on Bus Maintenance's record of success in keeping road call mileage in its fleet and service hours on the Mall Shuttle low, enabling the division the freedom to seek innovative solutions.

Best Practice

Many transit agencies perform bus refurbishment on a fixed-interval basis. This type of effort requires a large pool of labor – meaning transit agencies must either hire more people or use outside contractors to perform the job. As equipment has improved and manufacturing processes have made great strides in quality, general bus refurbishments are no longer necessary or cost effective. Rather than handcuffing staff to a fixed interval, RTD better uses its resources by performing targeted refurbishment on identified issues to address specific needs with a smaller, dedicated staff. Through these processes staff has identified parts that require replacement earlier than the manufacturer recommends and others that can last far longer – saving time and money and avoiding service calls.

RTD's equipment engineering and technical services section handles design of the technical solutions that go into the technical specifications of new buses. The engineering team reviews the operational and reliability problems with existing bus fleets and implements solutions through researching and testing better products, implementing advanced technologies and, in many cases, simplifying the existing design to allow easier operation and fewer chances for defects. The engineering team also draws on the expertise and experience of repair mechanics and bus operators to identify issues and suggest improvements. For example, before issuing a new bus procurement engineering and technical services assembles a team including an expert trainer, engineer, quality control, mechanics, operators and service personnel to discuss issues with the existing fleet that might be solved through technical or design changes.

RTD has implemented bus refurbishments only to address specific issues. RTD uses various bus history data and indicators to decide which sub-fleets require attention and what types of refurbishments are necessary. For example, after review of duty cycle history, parts usage, break down and maintenance data, and availability of replacement parts, RTD identified the mall shuttle buses as in need of critical maintenance and implemented a half-life refurbishment to improve reliability and availability for service.

Results

By leveraging the expertise and experience of in-house personnel – who live with the issues and could provide the solutions in a more expedient manner than vendors – RTD's in-house bus design and replacement has improved bus reliability while reducing costs. RTD uses Maximus asset management software to track operator calls and the nature of the issue. The software provides engineering and technical services with data to identify trends and problem areas. Since beginning the in-house design and replacement effort, RTD has improved bus reliability significantly. The RTD fleet roadcall mileage has increased from 7,500 miles per roadcall to today's 26,000 miles per roadcall.

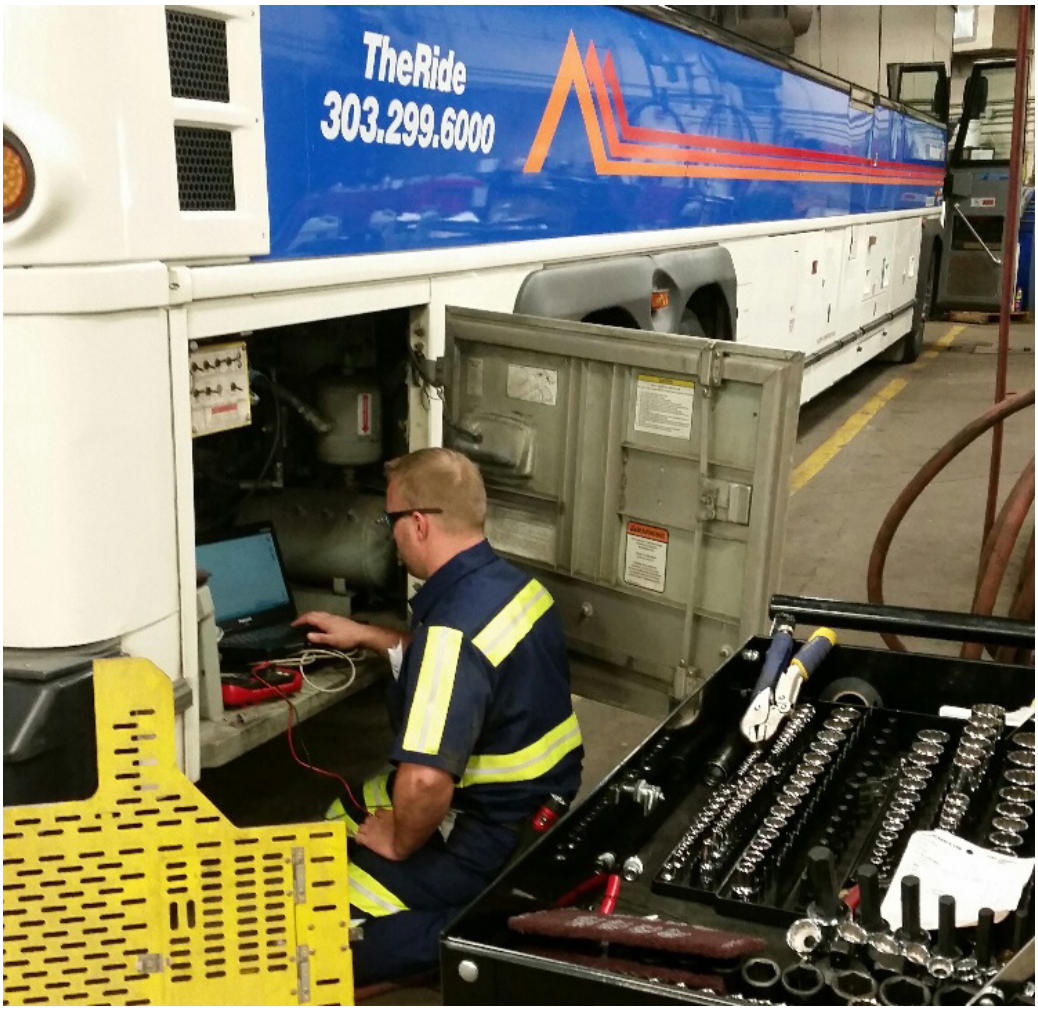
RTD uses Maximus data, in-house labor and engineering expertise to perform targeted bus refurbishments enabling the agency to address bus problem areas cost-effectively without increasing in-house labor. The half-life refurbishment has extended the Mall Shuttle's useful life to 14 years old as of 2014, exceeding the standard 12-year lifespan.

Department

Bus Operations

Contact(s)

- Lou Ha, Manager, Technical Services, Bus Operations
- Steve Gieske, Assistant General Superintendent, Maintenance



Goal

Provide flexible and cost-effective service to persons with disabilities.

Background

RTD provides Access-a-Ride local bus transportation in the Denver metro area for people who (1) are unable to get to and from a bus stop or on and off a lift-equipped bus by themselves or (2) have a cognitive disability that prohibits understanding how to complete bus trips. Qualified riders can schedule a trip within Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas and Jefferson counties in Colorado, as long as the starting point and destination are within three quarters of a mile of RTD's local fixed-route transit system. Access-a-Ride is available during the same days and hours as local bus service and includes door-to-door service with driver assistance. Riders may also establish subscriptions for regular trips to the same destination. RTD contracts with Easter Seals of Colorado to certify each passenger's eligibility for the program. The cost per rider to provide Access-a-Ride service averages $51.50.

Best Practice

In 1993, RTD began a pilot Access-a-Cab program as a way to provide flexibility and address a spate of denials to users of the Access-a-Ride service. The Access-a-Cab pilot began with an agreement with three local taxi companies to provide subsidized taxi service to eligible paratransit riders. One of the participating taxi companies was offered an opportunity to use recently retired RTD paratransit vehicles to improve the program for riders using mobility devices such as wheelchairs. The taxi companies were initially paid with vouchers on a per-mile payment structure.

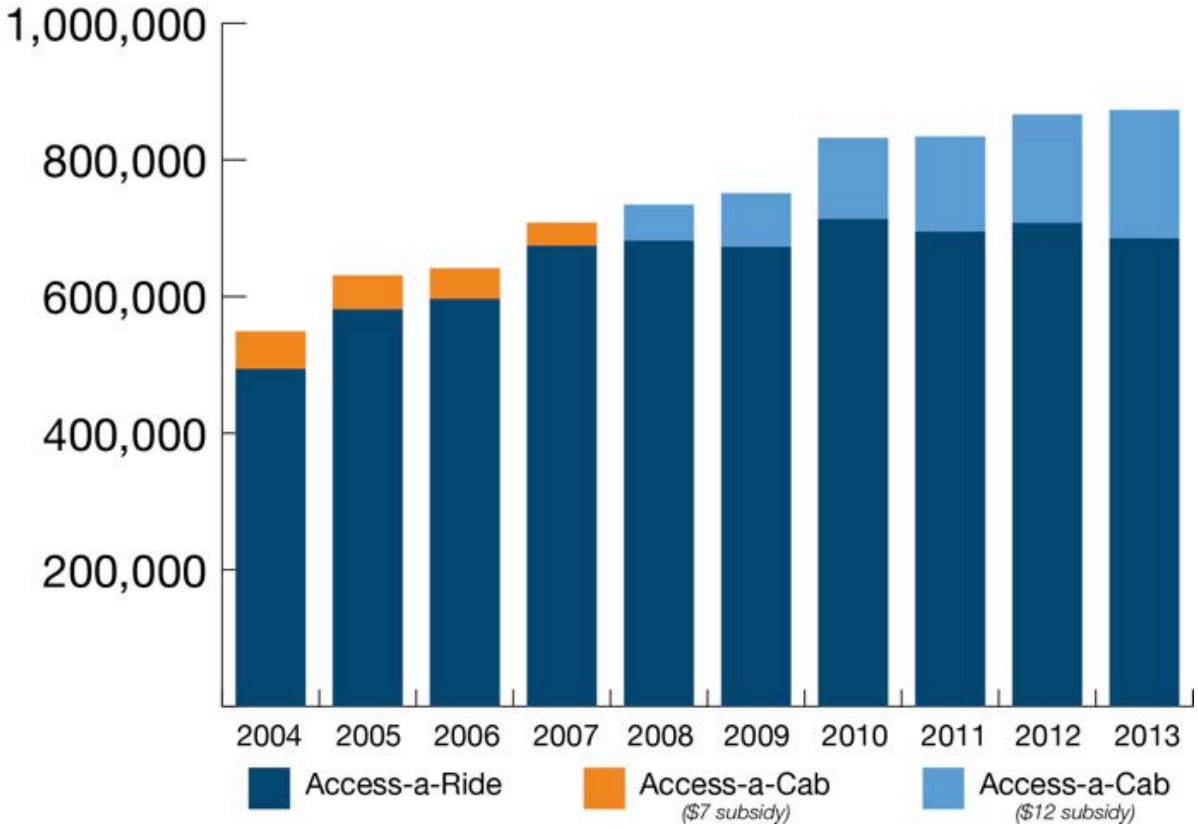
The pilot experienced initial success and its budget was increased to meet demand. Initial audits of passenger-tracked and taxi-tracked vouchers revealed instances of overcharging. Therefore, RTD instituted a flat subsidy for Access-a-Cab providers. Under the new arrangement the passenger was responsible for the first $2.00 in cab fare, RTD subsidized the next $7.00 in fare and the passenger was responsible for any amount above $9.00 for the trip. To address rapid growth in rider requests and encourage taxi providers to offer more rides, RTD adjusted the Access-a-Cab subsidy from $7.00 to $12.00 in 2008.

The Access-a-Cab service has proven to be very popular and given RTD flexibility in the service it provides to Access-a-Ride certified users. In contrast to Access-a-Ride, which requires at least 24-hours' notice to schedule a trip, clients can schedule same-day trips with pre-certified local cab companies. The $12 subsidy on Access-a-Cab rides also represents a significant savings over Access-a-Ride costs per rider. Riders are provided a choice between the additional cost and flexibility of Access-a-Cab and traditional Access-a-Ride services.

Results

In the 20 years of the program, certified user scheduled trips have increased significantly – making it harder for RTD to meet the customer service requests. Between 2004 and 2007, ridership grew from 493,948 to 674,419 (37%) significantly straining RTD's resources.

Graph: Access-a-Ride and Access-a-Cab Ridership 2004-2013



This change enabled RTD to serve ever more riders while maintaining the level of more costly Access-a-Ride effectively constant. Currently, Access-a-Cab ridership delivers 500 trips per day and has grown to represent more than 20% of total program ridership – Access-a-Cab now provides nearly four times as many rides as it did ten years ago. Delivering 187,884 Access-a-Cab rides in 2013 saved an estimated $7.4M over the cost of providing those rides through traditional Access-a-Ride services.

Resources

Bruce Abel 2011 APTA Presentation

Department

Bus Operations

Contact(s)

- Bruce Abel, Assistant General Manager, Bus Operations
- Larry Buter, Manager, Paratransit Services

Goal

Increase mobility in the region by coordinating vanpools rather than operating low ridership routes.

Background

Providing service in the most cost-effective manner is a struggle for transit agencies across the nation. Vanpooling is a transportation option that links geographically-clustered commuters and employees and provides a van driven and maintained by one of the vanpool participants. Typically, the vans carry from six to twelve riders and are provided by the vanpool program. Vanpools are organized on a break-even, cost sharing, fare basis but often prove difficult to organize because many commuters are uncomfortable driving larger vans and smaller vans do not accommodate enough people to amortize the purchase cost.

In 2001, RTD worked with the DRCOG RideArrangers vanpool program to overcome its limited participation due to perceived high fares and insufficient funding for van acquisition. In order to help overcome these barriers, RTD and DRCOG entered into a partnership in April of 2001 to expand vanpool service in the Denver metropolitan area. Since RTD support for the vanpool program began in late 2001, the number of vans in the RideArrangers service grew from 11 to 107.

Best Practice

RTD financial support helps underwrite the vanpool pricing structure to make vanpool fares more competitive. RTD subsidizes vanpool fares above the appropriate monthly pass rate for the length of the vanpool commute for each participant (Local $79, Express $140, Regional $176). RTD subsidies allow DRCOG to reduce fares for participants and purchase more driver-friendly minivans. DRCOG also uses RTD subsidies to provide incentives to attract and retain vanpool drivers.

Vanpool subsidies have been a worthwhile investment for RTD: the resulting increase in vanpool usage has enabled RTD and its partners to provide mobility to citizens of the District in a cost-effective manner. Adding vanpool routes reduces the calls for RTD to operate additional service – much of it likely to serve only a handful of riders. In a few instances, RTD has even eliminated a route that was better served by a vanpool.

Results

In 2009, DRCOG chose VPSI Inc. to operate the vanpool program. Currently the vanpools carry an average of 5.8 riders per van and the fleet is at 80% capacity.

DRCOG vanpool performance through the 3rd Quarter in 2013 resulted in an RTD subsidy per passenger trip of approximately $2.21. For comparison, the subsidy per passenger for RTD fixed route service in 2012 ranged from an average of $2.85 subsidy per passenger for central business district local routes to an average of $6.66 subsidy per passenger for suburban local service and an average of $5.23 subsidy per passenger for regional service.

Department

Bus Operations

Contact(s)

- Brian Matthews, Manager, Special Services

Goal

Verify the validity of contractor quality assurance (QA) practices in a best-value procurement, including all required materials testing.

Background

Owners can conduct all acceptance testing. While this approach can work for smaller, confined construction footprints, it introduces risks to RTD including:

- Late report submittals
- Failed material reported as passing
- Passing material reported as failed
- Incorrectly reported materials expose RTD to contractor claims
- Loss of certification
- Technician tardiness
- Cost of testing goes over budget

During the T-REX project, RTD and the Colorado Department of Transportation (CDOT) employed an Owner's Verification Testing (OVT) approach that sought to validate contractor test results through independent testing of approximately 10% of the testing the design-builder performed. Because the testing was completely independent, differences in test methods, dates, times, and locations introduced variation between the contractor and RTD/CDOT data sets. Over time, this resulted in significant differences. Although the database allowed RTD and CDOT to verify that construction material was of sufficient quality, the verification testing process itself was inconclusive.

Best Practice

At the beginning of FasTracks, the Quality Management Committee chose to require acceptance testing by the contractor's QA team, with OVT by RTD. Unlike the T-REX approach, RTD chose to conduct split sampling between the contractor's QA testers and RTD's OVT testers. In this approach, both testers, while still operating independently, tested the same sample of material, at the same time. All results were entered into a database to compare one-for-one split sample tests. Contractor test results differences that fell within a pre-defined tolerance were considered valid. Where significant differences were observed the matter was investigated and material retested if necessary. Split sampling was conducted on approximately 5% of contractor QA tests for West Rail Line and subsequent projects.

While split sampling alone provided RTD with adequate confidence in the test results, RTD chose to supplement verification testing with process audits of the contractor's QA test methods, equipment, personnel qualifications, number of tests versus material quantities, and disposition of failed tests. Process audits led to direct improvements in contractor QA testing programs, giving RTD further confidence in the contractor's methods.

Results

A split sampling approach to owner's verification testing, coupled with a robust process audit schedule, is an effective method to verify contractor QA test results.

Split sampled OVT:

» Minimizes variation from differing material test samples

» Enables direct comparison of test results

» Allows for a lower level of OVT testing (more cost-effective)

» Allows for investigation of specific results (improving contractor QA/OVT test methods)

With a proper materials testing verification approach, RTD places management responsibility for large, best-value, contracts with the contractor spreading out risk while still employing an effective verification program.

Resources

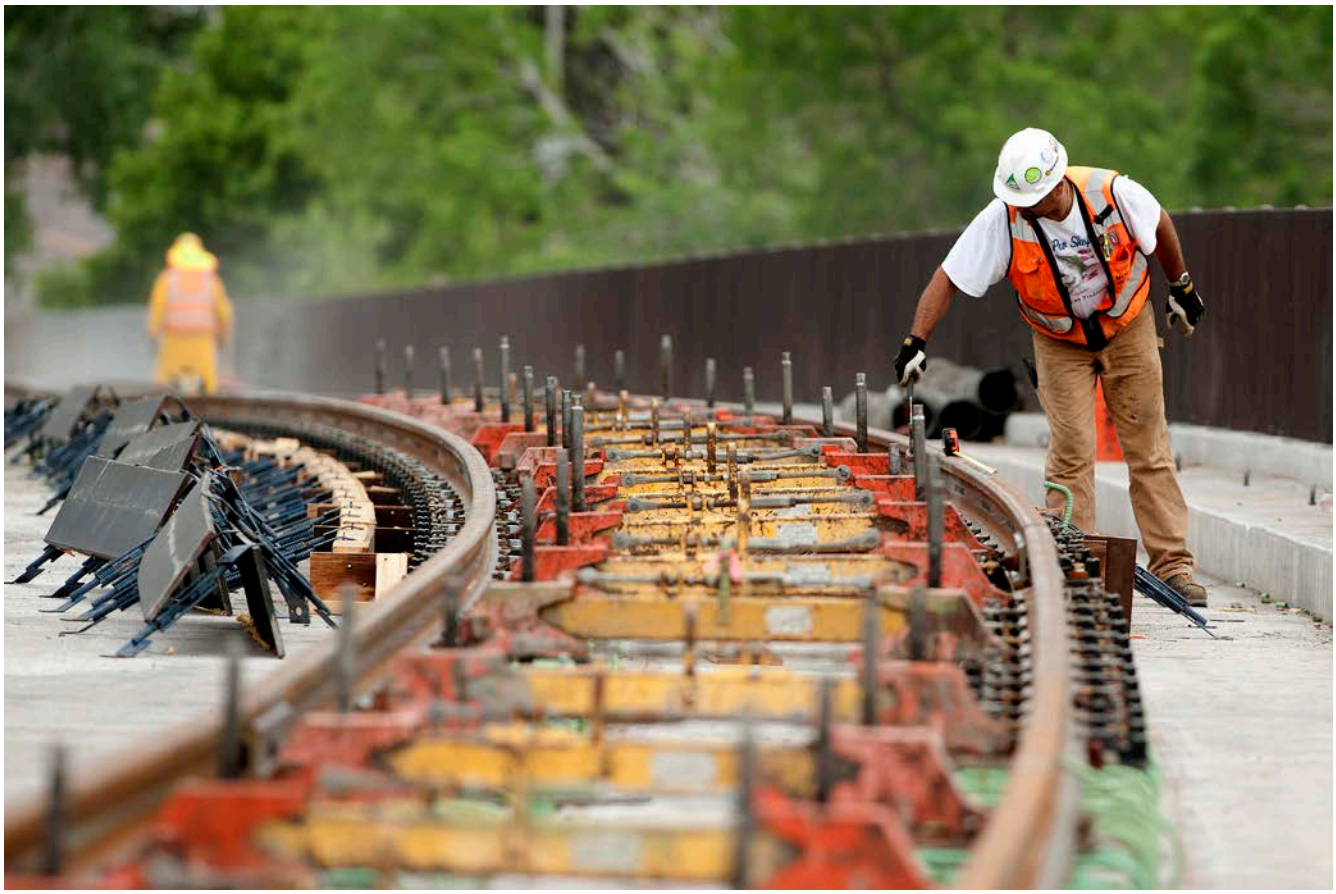
2013 RTD FasTracks Lessons Learned Report

Department

Capital Programs

Contact(s)

- Kevin Diviness, Director of Quality Assurance



NOT
OFFICIAL
TIME
CONGRATULATIONS
Accident Free Operators
East Metro Division

Internal Communication

Like many large organizations, RTD has struggled with internal silos: departments focused inward that are not in the habit of collaborating. Silos can prevent efficient operations and even lead to safety problems or other major issues if decision-making happens without input from key players in different areas of an organization.

While RTD continues to struggle with collaboration and communication between work groups – an issue highlighted in a recent agency-wide employee survey – the organization has worked proactively to create a collaborative culture. The following best practices highlight silo-busting projects across the organization, from a cross-departmental committee that oversees safety and security issues to a tool that increases communication between front-line employees and other departments. These successful projects can be used as models as RTD moves forward with efforts to increase communication.

Goal

Oversee safety and security policy and implementation for the district.

Background

The Executive Safety and Security Committee (ESSC) has its roots in the safety committee established to oversee the original Metro Area Connector (MAC) light rail line in the early 1990s. At the time that committee was established, having a safety committee was an industry best practice but not yet required by regulation. The original MAC committee focused on safety certification and review. Since that time, the committee has gradually grown in scope and membership to encompass safety issues related to bus operations (in the late 1990s), security (in the early 2000s), and, most recently, asset management. The FTA now requires an interdisciplinary committee of this type to oversee many safety issues.

While the ESSC is now well-regarded around RTD, this was not always the case. Having a champion within the organization was an essential part of establishing and developing the ESSC. The Assistant General Manager (AGM) of Safety, Security and Facilities, championed the committee before federal regulations made it essential and invited different departments to participate, gradually building the committee's membership and reputation. Acceptance has grown as new individuals have joined RTD and saw the ESSC as an established part of doing business at the agency.

Best Practice

The Executive Safety and Security Committee (ESSC) includes members from across the district: at least one representative from each department is invited to serve on the committee. The most active members are from Safety, Security, Rail Operations, Capital Programs, Risk Management, and Bus Operations, but Finance and Communications also participate regularly. Individuals at many levels of management are invited to the meetings to comment, present, and observe, but only AGMs can vote. Much of the committee's business, including voting, occurs over email.

The committee meets once per month and the meetings follow a set agenda beginning with bus operations and ending with corridor updates. Meetings run for no more than an hour. In the meetings and over email, the committee is updated on accident trends, facilities issues, transit security statistics, rail modifications and design criteria variances, changes to standard operating procedures, accident investigations, hazard management and state safety oversight. Because the committee is interdisciplinary, the meetings focus on broad issues rather than details, which helps keep all attendees engaged.

The ESSC is a mature committee that is well-regarded throughout the agency and people from many different departments regularly refer issues to the ESSC. In addition, certain issues must go to the ESSC: federal regulations require that representatives from many parts of the organization review certain issues. For example, Capital Programs can handle minor variances in their department, but a level IV variance must go to the ESSC for a vote because it could create safety issues that only someone from operations or safety would be able to identify. RTD had already developed the ESSC before many of those federal regulations went into place, and having an established committee to handle those types of reviews has served the agency well.

The ESSC must come to a consensus on voting issues and each member has the option to block consensus. The consensus and consensus blocking model has been a key part

of the committee's success. For example, Capital Programs might request a change to a component of a rail line that will save money. Rail Operations will be the primary department affected by the change. Other members of the committee – for example, Bus Operations, Safety, Security and Facilities, and Finance – might approve of the change or have no opinion, meaning the change could go through under majority rule. But, under consensus blocking, should the Rail Operations department oppose the change that participant may block the decision and force the committee to explore other solutions. In the history of the ESSC, there have only been a handful of cases when the committee could not come to a consensus. In the rare cases when the ESSC cannot reach consensus, the General Manager makes the final decision.

Results

The ESSC puts RTD ahead of the industry in inter-departmental collaboration around safety issues. Other transit agencies often fail to involve all of their internal stakeholders in safety decisions, and establishing an ESSC can be a step toward achieving that input.

In addition, the ESSC has been flexible enough to address new regulations. Recently, FTA began requiring interdisciplinary oversight for state of good repair issues. For example, if an asset is in service outside of certain specifications, an interdisciplinary committee can approve its use under certain circumstances. Because RTD already has the ESSC in place, the agency has simply added asset management to the roster rather than having to establish a new committee for that purpose.

The ESSC has been so successful for RTD that the Eagle P3 project also has an ESSC with the concessionaire.

In peer reviews, RTD staff have recommended that other transit agencies establish similar committees to meet regulatory requirements and improve safety at their organizations.

Departments

Safety, Security & Facilities

Contacts

- David Genova, Assistant General Manager, Safety, Security & Facilities

Goal

Facilitate communication and collaboration between the general counsel's office and other RTD departments and minimize legal costs for the agency.

Background

RTD has had in-house counsel since at least 1974, shortly after the agency was founded. At various times in RTD's history, the agency has considered out-sourcing some or all legal work. In 1996, RTD hired a productivity consultant to assess the legal department. The consultant investigated outsourcing some department functions, but determined that RTD should continue to have in-house attorneys and that the department had the right amount of staff. RTD does outsource legal work in certain specialized areas, including eminent domain and bankruptcy cases and bond and tax matters.

The General Counsel's Office has developed and maintained strong relationships with clients even as RTD has grown with the FasTracks expansion. When FasTracks passed, the General Counsel's Office added two project attorneys specializing, in part, in real estate, who are paid out of the FasTracks budget. Those attorneys, along with the rest of the legal staff, have worked closely with the Capital Programs Department.

Best Practice

The RTD attorneys work to develop relationships with clients across the agency. The success of these relationships depends on a combination of personal interaction and the following policies:

- Having in-house legal services rather than contracting with outside firms saves time and money: RTD lawyers already understand the agency and the industry before they receive a call from the client.
- Financial policies help to ensure that attorneys and clients communicate early and often. While some agencies charge departments for internal legal services, RTD allows all departments free access to the legal team. This policy encourages clients to call on attorneys in order to solve their problems early and it prevents departments from competing for attorneys' time. Even departments with relatively small budgets can take advantage of legal services.
- Recently, RTD has stressed the single, agency-wide mission. This emphasis on common goals helps show clients that attorneys are their allies, and, as a result, clients are more likely to contact attorneys early.
- Some departments include a non-lawyer who is an expert in specific legal matters. This model works well because attorneys have a point person with whom they communicate frequently. For example, the Capital Programs Department includes a real estate specialist who acts as a liaison between the attorneys and the engineers and handles minor issues.
- The General Counsel's Office encourages attorneys to add to their expertise through continuing legal education. While the RTD attorneys work closely with departments, they are co-located at Blake Street in order to improve cross training.

In addition to following these standard policies, some individuals in the counsel's office have taken steps to develop positive relationships with their clients:

- Responding quickly to client requests
- Providing multiple options for clients
- Introducing clients to the attorney who can best help them with their request

Area of Opportunity

The informal nature of attorney-client relationships can cause pressure when a client calls the same attorney for all of their needs. Currently, the General Counsel's Office does not have a standardized method for distributing work. Designing a consistent system for assigning work could help newer attorneys build relationships with potential clients and reduce the workload for attorneys who have been with the department longer and are regularly sought after by their clients. In the long term, a more formalized system could improve interdepartmental relationships as attorneys can continue to respond quickly to client requests. The risk is that attorneys who are highly specialized are subject to the ebbs and flows of their particular areas of practice which can also be unpredictable and make for an imbalanced work load.

Results

Clients who have a good working relationship with an attorney are more likely to contact them early when an issue arises, which can prevent problems.

Hiring in-house attorneys also saves money for the agency. For example, RTD recently had to outsource legal work for an out-of-state bankruptcy case for $70,000, considerably more than the cost of similar projects that are handled in house.

Resources

Contact information for RTD attorneys and their specializations are listed on The Hub

Information on common legal issues such as CORA requests, records retention and use of facilities are outlined in management directives available on The Hub

Departments

General Counsel

Contact(s)

- Marla Lien, General Counsel
- Rolf Asphaug, Deputy General Counsel

Goal

Obtain grant funding for projects throughout the agency.

Background

In 2013, the RTD Board created a 2014 General Manager goal to pursue innovative, priority-based FasTracks and Strategic Budget Plan Funding. The General Manager's annual goals set the tone for the work of the agency for the year. At the same time, after a temporary increase in discretionary grant opportunities from the Federal stimulus in 2009-10, Federal transportation and construction grant opportunities decreased significantly. These circumstances motivated RTD to take a proactive, targeted approach in seeking grants.

Until 2012, most members of the Planning Department wrote grants, but there was no systematic process to identify opportunities or collaborate with project sponsors. Generally, the Assistant General Manager (AGM) of Planning or a senior manager would assign a grant to an individual, who would then write the grant and turn it in for review at the end of the process. Often, the grant writer had to make substantial changes after the review, which was time-consuming and inefficient. In addition, due to Federal sequestration in 2013 formerly available discretionary grant opportunities were eliminated or reduced. The Planning Department created the Grants Taskforce (or Grants Team) to pursue grant opportunities systematically, encourage collaboration during the grant seeking and writing process, and work proactively to discover non-traditional sources of grant funding.

Best Practice

The grants taskforce is based in the Planning Department because planners typically have both the writing and research skills and the technical knowledge required to write a successful grant application. Because planners are involved in the early stages of projects, often before they are funded, they frequently know more about the technical details of the project than anyone else in the agency. At the same time, planners are trained in writing, data visualization, and stakeholder involvement – skills necessary for a professional grant application.

The grants taskforce meets monthly to discuss grant opportunities, identify lead authors to write upcoming grants, and share information about related projects throughout the district. All official members of the taskforce attend regularly, while other members of the Department attend when the taskforce requires their input. When many members of the Planning Department contribute to a grant – which is often the case – they share information on their progress regularly, preventing duplicative work.

After identifying potential grant opportunities, members of the taskforce contact AGMs and senior managers who might have relevant projects. In addition, they consult individuals throughout RTD who might have projects that meet the requirements of the grants. The taskforce members inform both upper-level and mid-level management of grant opportunities. In the past, they found that the agency missed out on possible opportunities because the grants team had not informed all potential internal stakeholders, and information did not always trickle down from upper management to practitioners. The grants team has developed close working relationships with project managers in Capital Programs who frequently oversee relevant projects. When writing a grant, the taskforce members leading the effort will frequently check in with the project managers or other sponsors. Sponsors also provide essential materials and information during the grant-writing process. In general, project managers and

sponsors are enthusiastic about grant opportunities, and they have readily provided required information and resources to the grants team. A management directive has also been approved detailing the Grants Task Force Process for Preparation of Competitive Grants.

Communication and collaboration can be more challenging after a grant is awarded. In past years, the Planning Department turned over the grant to the sponsoring department after award. In some cases, the turnover has produced confusion, as planners who worked on the grant are asked to approve financial documents and perform other tasks that should fall under the purview of the sponsor. A management directive outlining the Establishment of Grant Administration Responsibilities Post-Award is currently under review.

Results

Since it was established in 2013, the grants taskforce has formed relationships with potential grant recipients across the agency. Increasingly, individuals throughout the organization recognize the taskforce as the people to come to for assistance with grant opportunities. This has allowed them to learn of opportunities beyond traditional Federal and State sources for transportation and construction. Even as opportunities have dwindled, in both number and funding, the grants team has continued their strong record of successful grant awards.

Resources

Management Directive: Process for Preparation of Competitive Grants

Department

Planning

Contacts

- John Elias, Senior Policy Analyst & District Historian
- Ryan Mulligan, Eagle Risk Assessment

Operator Information Page/Bulletin Board

Goal

Improve constructive communication among operators (including contractors), Bus Operations, Customer Care, Service Planning and Development, and other RTD departments in order to increase efficiency and reliability across the system.

Background

In the mid-2000s, RTD's service planners, customer care department and operators were not communicating regularly. This meant service planners were not aware of important issues when developing new schedules and Telephone Information Center (TIC) operators could not adequately inform the public about detours and other service changes. At the same time, bus and light rail operators did not have a way to access schedules and other important information in order to prepare for their days before arriving at work, and they had no simple way to provide feedback on routes and schedules. Some operators felt that their ideas and opinions were not valued by the agency.

In 2008, when the operator information site and bulletin board debuted, RTD's intranet site was only available at RTD facilities. The agency had identified a need for better information sharing, but had not yet identified SharePoint as a solution. In early 2012, RTD released a new, SharePoint-based intranet site, "The Hub." Gradually, departments have added content to The Hub and it is now accessible at home. Bus operators required a separate website so they could access information 24/7. Therefore, the operator site stands alone outside of The Hub. RTD is planning to revise the current site to link it to SharePoint and The Hub more directly.

Best Practice

The Operator Information Page provides access to the entire Trailblazer, run sheets, train cards, bulletins, rider alerts, and other information that bus and train operators need on a regular basis. Operators have access to the site from home (using a log-in) and at kiosks located in all of the RTD and contractor facilities. Any RTD employee and bus operator contractors can access the site directly using a log-in. The Customer Care Division can access the Information Page via a shortcut on their desktops. The site was designed to be easy-to-use, even for those without extensive experience with computers.

In addition to receiving information from other parts of their departments, operators can post suggestions and ideas on the Operator Bulletin Board. The Bulletin Board is accessible through the Operator Information Page. Rather than building a bulletin board from scratch, a service planner discovered an outside software service, Website Toolbox, that costs $150 per year and is easy to operate. Website Toolbox staff has been responsive and helpful.

Any operator with a log-in can post suggestions, ideas, feedback, or other information to the bulletin board. Service planners, street supervisors, Dispatch, the Sign Shop, and other department managers check the board regularly and respond or forward information to other departments.

The Operator Bulletin Board Interface:

Operator Bulletin Board

Control Panel | Search | New Posts | Chat | Logout

Back to rtd-denver.com > Forums > Regional > **Bolt Cut Out Stops**

Welcome, CesarOchoa
You last visited on 06/01/09 at 12:03 PM
Private Messages: 1 Unread

Thread Tools | Search This Thread | Reply

Author	Comment
Adam Registered: 05/27/08 Posts: 6	05/26/09 at 09:22 AM #1 When driving the South bound Bolt, is it necessary to pull into the cut out on 28th/Iris if I have no passengers getting off?
CesarOchoa Registered: 09/27/07 Posts: 87	05/27/09 at 09:35 AM #2 Adam, Thank you for the question. The short answer is, no. SB on 28th, between Iris and Canyon, if you have no passenger requests for a stop, then you can stay in the general purpose lanes and by-pass the cut-out stops. Cesar Ochoa Service Planner/Scheduler (North Team) 303.299.2268 cesar.ochoa@rtd-denver.com Edit | Delete
Adam Registered: 05/27/08 Posts: 6	05/27/09 at 10:50 AM #3 Hi Cesar, Thank you for your quick reply. In the same instance, if someone is waiting in the 28/Iris stop, should I pick them up? The Shelter says deboarding only.
CesarOchoa	05/27/09 at 02:53 PM #4

Areas of Opportunity

The Operator Information Page and Bulletin Board is outgrowing its original format. The Information Page is maintained by information technology (IT) staff, and IT is looking into ways to make the page more interactive and 'real-time,' rather than having only static uploads available. A lone service planner has managed the Information Page and the Bulletin Board on a voluntary basis since its inception, but the site is now large enough to require dedicated staff time. Transferring ownership of the project to a new staff member may jeopardize the trust operators have built in the current system, however.

In addition, creating a process for responding to requests that are relevant to other departments would make the bulletin board more useful. Making other departments aware of the importance of checking the bulletin board is also essential.

Operators currently access the page on their own time because the collective bargaining agreement (CBA) does not encourage operators to access information outside of typical working hours. Adjusting the next CBA to pay operators to access the site could improve communication.

Improving connections to documents important for operators through The Hub and SharePoint could also enhance the Operator Information Page.

Results

Currently, the Operator Bulletin Board has 950 members, primarily operators. Typically, the Operator Bulletin Board receives 3,000 views per month, though it has received as many as 5,000 views per month during major events such as the West Rail Line Opening.

Feedback from the Bulletin Board has led bus operations to fix schedules and running times, address issues with the automatic stop announcement system, adjust runs, correct the Trailblazer, and informed other key changes, which has increased efficiency and reliability throughout the District.

Resources

Operator Bulletin Board

Department

Bus Operations

Contact(s)

- Nataly Erving, Senior Service Planner/Scheduler

Goal

Provide optimal technology solutions based on a solid understanding of user needs.

Background

In the past, the Information Technology (IT) Department typically chose a software solution before consulting with the business units (users) to determine their needs. This appears to have been the case with the Oracle Business Intelligence software package, for example: IT selected software that did not fully meet the needs of users. Recently, IT has begun to delay selecting or developing a product in favor of communicating early and often with the business units until they fully understand what the users need.

In addition, the IT department primarily purchased commercial off-the-shelf (COTS) products in the past. Now, the department is careful to determine user needs before deciding whether to purchase COTS software or develop a product in-house, which is often more cost-effective and appropriate for user needs.

Best Practice

Before the IT department chooses software, the requesting department must submit a service request or project request via The Pulse (Innotas) or via the service request form on The Hub (RTD's Intranet). IT is working to develop relationships with AGMs and managers to ensure that they are aware of these tools and submit requests appropriately. Next, the IT department identifies a project manager for each request based on expertise. In most cases, someone in the department has an understanding of the possible technology solutions, but often the IT professionals do not understand the business needs well. The project manager then speaks with the representatives from the business units to determine how they will be using the software.

In cases when the business unit's processes are well established but flexible, this strategy works particularly well. The new Strategic Budget Plan (SBP) process has been a good example: IT conducted a needs assessment with the Finance Division, and they determined that Innotas, the same cloud-based service that IT uses for project requests, could meet their needs for the SBP process. Then the IT and Finance Divisions worked together to customize Innotas and tweak the SBP process based on that tool.

Recently, IT has implemented the needs assessment process as they fully implement SharePoint. Because SharePoint is a tool for collaboration, the IT department convened small focus groups with members representing all parts of the agency to learn how RTD users collaborate. In the next phase, IT professionals will create a preliminary implementation plan, and then they will consult with user groups again to ensure that they are on the right track with SharePoint.

Areas of Opportunity

Ideally, each business unit would identify one or two product owners for each project to make decisions about what is needed and interact with IT. Currently, many projects have no product owners or champions on the business side. This means that IT sometimes has to make decisions that are functional rather than technical in nature. When IT makes functional decisions, software often does not meet user needs, which can slow down the development process, raise expenses, and force users to work with sub-par products.

With more resources, IT would add more business analyst positions within their division. Business analysts would act as liaisons between developers and the business units, and the needs assessment would be a key part of their roles.

Results

The needs assessment process has worked particularly well with departments that interact with IT frequently. IT has developed a positive working relationship with Bus Operations, which has served both parties well during development and implementation of the Transportation Information Exchange System (TIES) used for operator and vehicle assignments and reporting. TIES replaced an unsupported legacy program. IT chose to create software to replace the legacy program rather than purchase COTS software because the business process in question was unique to RTD. They worked with Bus Operations directly and have continued to interact with the department through a TIES working group. The TIES software has met the needs of the users in Bus Operations.

Resources

The Pulse/Innotas (project requests)

IT Service Manager (service requests)

Department

Information Technology (Finance & Administration)

Contact(s)

- Kim Heldman, Senior Manager, Information Technology
- Rahul Sood, Manager, Software Architecture & Development

Goal

Improve responsiveness to business units and streamline software development and implementation.

Background

Over a six-month period in 2012, the Software Architecture and Development Group implemented an agile approach to software development to increase efficiency and ensure they were meeting the needs of the business units (users).

Before that time, the department used a "waterfall" approach to software development. The waterfall approach began with a long process to determine business requirements and obtain sign-offs from the business units, followed by an extended (3-month-to-one-year) development period and, finally, delivery of a product. There was little communication with the business units.

The waterfall process was slow and frequently ineffective, and the business units' needs would often change before a product was complete. In addition, substantial staff time was devoted to unnecessary documentation of the development process rather than producing software.

Best Practice

The agile approach emphasizes communication, collaboration, and flexibility. Before the entire project begins, developers work with the business unit to determine their needs and priorities and break the requirements into small pieces of work called "user stories." The user stories become part of a "product backlog," a to-do list for the developers.

Next, software developers are split into small project teams (called a "scrum") of 4-5 people that work on a segment of a project for a short period (called a "sprint"). The business unit selects top priorities (user stories) from the product backlog. The developers work on those priorities in the first project sprint, which lasts 2 to 4 weeks. At the beginning of the sprint, the development team (scrum) holds a planning meeting where each member chooses the user stories that they will own during the sprint.

At this point, the RTD implementation of agile diverges from the industry ideal. In an authentic agile environment, a product owner representing the business unit would attend the meeting at the beginning of the sprint. This rarely happens at RTD because the business units do not assign product owners. Instead, many people from each business unit are involved in the development process, while no single person has the authority to make a final determination about priorities. Because it is impractical to invite a large number of people from the business unit to the IT department meetings, IT holds a separate meeting with the business unit at the beginning of the sprint.

Members of the scrum work for the duration of the sprint to accomplish each priority, and it is important that the priorities do not change during this phase. In order to ensure that the team members can work without interruption, a "scrum master" oversees the sprint. The scrum master is similar to a traditional project manager, but it is a far more flexible position, and anyone on the team can be a scrum master. The team meets each day to discuss roadblocks and ensure that everyone is moving forward. The daily meetings are always short because everyone is required to stand.

At the end of the sprint, team members share results with each other. A product owner from the business unit is also invited to this meeting in an ideal agile environment. At RTD, because there is no product owner, a representative from the development team

meets separately with the business unit to present the work. Next, a member of the development team consults with the business unit to identify the next set of priorities for the project. The process then begins again with another sprint.

At RTD, the process continues until the product vision and charter are fulfilled. There is no set scope statement. Instead, constant collaboration and communication with the business unit allow the developers to accomplish as much work as possible and ensure that the product is relevant.

Areas of Opportunity

Two important elements of the agile process are missing at RTD. First, the business units do not assign an owner or take responsibility for the product ownership for each product. This means that IT often acts as a mediator between different staff members or divisions with different expectations for a product. The problem with this approach is twofold. First, IT makes functional decisions that should reside with the business unit, and inviting a large number of individuals from the business unit to planning sessions is impractical, so the business units' involvement is more limited than it would be in an authentic agile environment. This leads to the same miscommunication and inefficiency that IT implemented agile to resolve. Secondly, IT does not have the resources (time and staff) to incorporate a retrospective into each sprint. In an ideal agile environment, the team would reflect on each sprint to identify strengths and gaps. Instead, the developers go through a lessons learned process only on the project level. Again, this means the process is less efficient than it might be in a pure agile environment.

Results

IT reports that the business units have been very receptive to the new agile approach because they are able to provide more input into the process than in the past. In addition, this approach has saved money and time because the software is more likely to meet the needs of the business unit than software developed using the waterfall approach.

Department

Information Technology (Finance & Administration)

Contacts

- Rahul Sood, Manager, Software Architecture and Development

Goal

Inform RTD staff and board members about various topic areas and promote consistent messaging across the agency.

Background

The FasTracks Public Information (PI) Division developed a Key Messages Manual in 2006 to provide the FasTracks team, board members, and other key agency staff with information and key messages on various topic areas so they would be able to answer questions about important issues. Up until that time, many staff and board members were not able to explain technical issues consistently and without slipping into jargon. In some cases, they did not understand technical topics that were important to the agency. There was no obvious place for them to go to quickly learn about an issue or learn how to explain it in a consistent, straightforward manner.

The Key Messages Manual was originally a controlled document within FasTracks available only in hard copy. The managers of FasTracks signed off on the document and the PI team distributed it to board members, FasTracks staff, and key staff throughout the agency. Eventually, the PI team collaborated with the Public Relations (PR) Division to expand the document into a general RTD Key Messages Manual. It is now available to the entire agency electronically through The Hub intranet and staff can print the manual from the link if they prefer to have a hard copy for easy reference.

Best Practice

Each year, the PI/PR Division revise the Key Messages Manual by working closely with subject matter experts throughout the agency. In many cases, they know the subject matter experts, but if they are not familiar with the best internal person to work with on a specific topic area they ask an AGM to recommend an expert. Members of the communications staff write the first draft of the key messages that are most relevant to their specialization. Next, they send the drafts to the subject matter experts to review and revise as necessary. Finally, the Senior Manager of Public Relations reviews the entire document prior to distribution. The PI team updates the Key Messages Manual annually and determines which messages are still relevant, which ones should be revised and what additional key messages should be created on new topic areas.

Throughout the year, the PI/PR Division develops and distributes key message sheets on topic areas as new issues emerge or change. At the end of the year, they roll all of the new sheets from the previous year into the Key Messages Manual and aim to distribute the manual to the agency at large in January. The document is a tool for all RTD personnel, who are ambassadors for the agency and could be in a position to provide information and field questions about RTD issues and initiatives at any time.

The PI/PR Division also complements the Key Messages Manual with communications and media training for board members, the senior leadership team and project managers. In addition, a weekly internal email called Friday Facts is an offshoot of the Key Messages Manual that came about because board members requested more up-to-date information and talking points on important and current issues.

Results

The manual is essentially a quality control tool for messaging related to FasTracks and, now, RTD as a whole. The Key Messages Manual, along with the additional work in media training by the PI/PR team, helped the agency stay on point through the economic difficulties of the recession and gain public support for the agency's innovative initiatives like the Eagle Public-Private Partnership (P3).

The Key Messages Manual helps board members and staff discuss topics and issues that could be technical or controversial, such as public-private partnerships, environmental planning, property acquisition, or funding. Board members and staff often use the Key Messages Manual when preparing for interviews, telephone town halls, public meetings or meetings with constituents. In addition, the PI/PR team refers to the Key Messages Manual and repurposes the information to efficiently write newsletters, articles and other informational materials.

Resources

Key Messages Manual is available on The Hub

Department

Communications

Contacts

- Pauletta Tonilas, Senior Manager, Public Relations & Public Information

Goal

Ensure consistency, quality, and equity in environmental planning across all FasTracks corridors.

Background

With the passage of FasTracks, RTD planned to build multiple rail corridors simultaneously for the first time. Before FasTracks passed, RTD had no guidelines or standards to ensure that environmental planning was consistent across corridors. To ensure consistency, the Planning Department created the NEPA Volume I manual – a set of guidelines for the environmental process to distribute to consultants – in 2006.

Best Practice

The RTD board requires that the agency follow a consistent process across all corridors, including corridors that receive federal funding and those that do not. When a corridor does receive federal funding, RTD must complete an environmental impact statement (EIS). For corridors funded through other sources, RTD completes an Environmental Evaluation or EE (which is not a NEPA term but a term created by RTD) that is equivalent to a federal NEPA process. By ensuring consistency across corridors, environmental reviews improve efficiency and result in a higher quality of environmental protection and predictability for corridor stakeholders. Maintaining consistency also ensures the process is equitable across the district and all corridors, ensuring compliance with Title VI regulations.

The NEPA Manuals provide guidelines and standards for the FasTracks environmental planning process. NEPA Volume I ensures that RTD takes a standardized approach to the EIS, and EE processes. NEPA Volume II outlines programmatic agreements with regulatory agencies and guides overall program environmental policy through the life of FasTracks. NEPA Volume III guides environmental work through design and construction. The three manuals have different users: Volumes I and II primarily focus on the early phases of a project, and consultants use them when preparing NEPA documents to ensure they meet RTD's specifications. RTD staff involved in environmental mitigation tracking, design and construction are the primary users of NEPA Volume III.

The FasTracks Environmental Resource Group (FERG) updates the NEPA manuals regularly and distributes "FERG alerts" to key staff when regulations change. In addition, a member of the FERG is embedded with each project so that RTD can quickly address environmental review issues as they arise. This structure allows FERG members to quickly identify and address inconsistencies across corridors. For example, currently consultants manage tree trimming differently in each corridor, so the FERG is creating a white paper on the topic to distribute to staff and consultants. Because very little design is completed upfront in design-build projects, FERG is especially involved late in the process: 30% of design must be completed for an EIS. FERG must work closely with Capital Programs as they build each corridor.

Capital Programs recognizes the value of the FERG group and the NEPA manuals because they make the environmental process more efficient and prevent problems with regulators. In addition, the Federal Government will not distribute funds to a project that does not follow environmental regulations correctly. Because the FERG group engineering comply with regulations, the FERG has been able to overcome any inter-departmental or disciplinary divides between planning and engineering. Capital Programs recognizes that the EIS process is part of doing business and consults

the FERG members regularly. Even after the EIS process is over, RTD must conduct clearances (re-evaluations, categorical exclusions, and a supplemental EIS for major changes), and track mitigation commitments so the FERG works with Capital Programs continuously through the construction process.

Area of Opportunity

In the past, a planner was the project manager during the early phases of a project, while an engineer who would later become project manager worked on the project as a design manager/deputy project manager. . The engineer would take over as project manager during the final design and construction phases, while the planner stayed on the team to provide institutional memory and assist with planning and political situations that might arise late in the project. In practice, staff turnover has caused this system to break down, and planners have not had long-term involvement in projects. This is problematic when engineers make changes that could affect the environmental process or lead to other issues and do not inform planners early. In addition, the transition can be complicated because planners traditionally manage the politics of a project at the beginning and engineers, who may have less training in community and stakeholder involvement, must take over later on. Still, the process has worked effectively when staff members stay through the life of a project.

Results

A number of agencies have referred to RTD's NEPA manuals as they create their own processes for environmental review. Notably, CDOT used RTD's manuals as a basis for creating their own, similar documents.

Resources

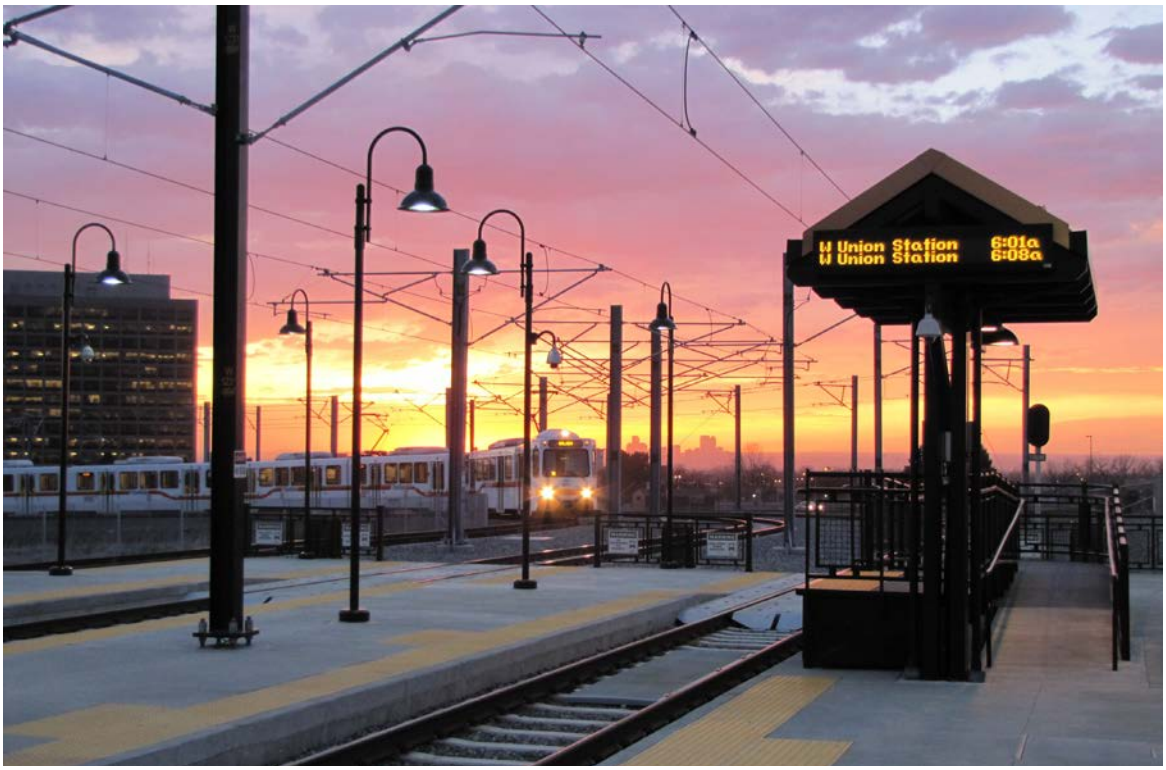
Manuals are stored on the X: Drive (Internal Only)

Department

Planning

Contact(s)

- Liz Telford, Manager, Corridor Planning (Environmental)



Technology

RTD has increasingly begun to recognize the importance of technology in all areas of the operation. As the agency has expanded without adding staff, the importance of using technology to "do more with less" is more evident than ever. At the same time, providing information is becoming increasingly essential to RTD's mission: for example, providing information to customers can increase reliability, and using technology to share information across the district can increase safety. As one employee put it, "we are becoming an information company."

While RTD continues to add technological advances, the agency has accomplished major technology projects that lay the groundwork for future innovation: the CAD/AVL project featured here is the primary example. Finding opportunities to use technology in other areas, such as Title VI reporting, is an ongoing project for many parts of the agency.

The best practices below should inspire smaller transit agencies that are just beginning to make the transition to transit's information age.

Goal

Select and implement a Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL) system for Bus Operations to increase reliability and safety of bus service.

Background

In the mid-1990s, RTD implemented a new state of the art CAD/AVL and radio system. By the mid-2000s, RTD's Motorola 450 MHz three-tower radio and Trapeze dispatch systems were antiquated and crashed frequently, leaving dispatchers and street supervisors with few options for contacting bus operators. Occasionally, Dispatch was forced to operate for days at time with only voice communication to buses. In other cases, the system would report that buses were driving in non-specific or even non-existent locations, such as the intersection of Interstate 25 and Interstate 25. When that previous system was implemented, there was turnover in project managers and few users were consulted during the testing, roll-out or troubleshooting phases. The system was already becoming antiquated within five years of implementation.

In 2003, the Federal Communications Commission (FCC) announced that they would narrow-band the radio system that RTD was using as part of the problematic earlier system. This gave RTD a regulatory deadline of December 31, 2012 to switch to a new radio system. As the project to create a new radio system began, the agency recognized that this was an opportunity to capitalize on new technology and replace the entire antiquated system.

Best Practice

The Bus Operations Department and Information Technology (IT) division worked together on the CAD/AVL project from the beginning. Early on, Bus Ops and IT defined their responsibilities related to the project, with IT acting as the technical lead and Bus Operations acting as the business lead.

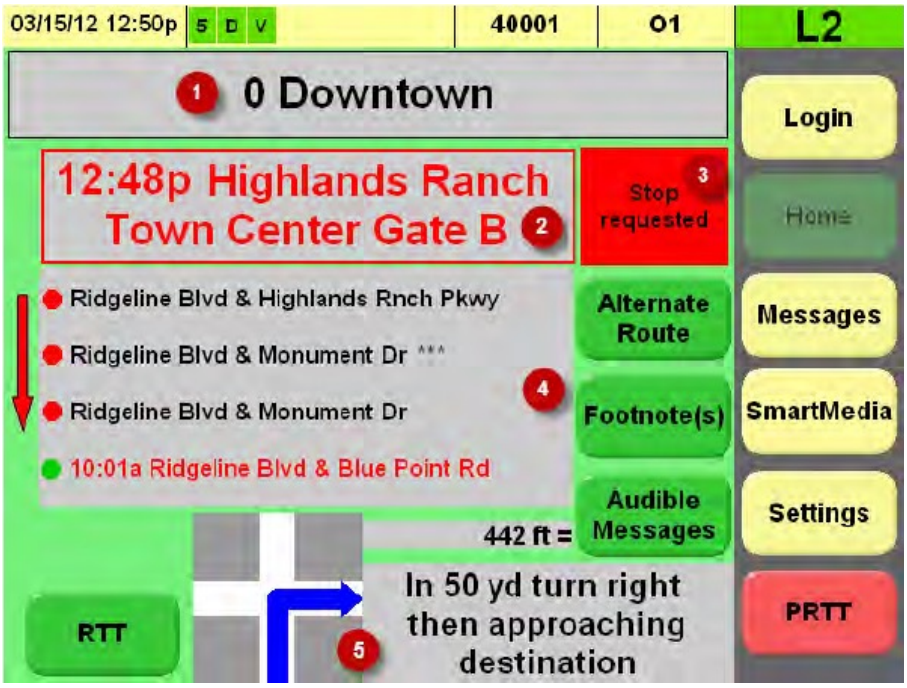
When it became clear that the CAD/AVL project would be a more significant undertaking than a simple radio upgrade, the IT project manager took the lead and brought on a consultant, Booz Allen Hamilton, to help plan the project. IT was able to hire the consultant quickly because they already had an ongoing work order with Booz Allen Hamilton, avoiding any delays that could have been caused by a long procurement process. Booz Allen Hamilton recommended that RTD hire an owner's representative to be a project consultant, conduct a peer review, and act as a liaison between the project vendor and RTD. The owner's representative would also advocate for RTD's interests and take on other short-term tasks during the project roll-out.

RTD considered proposals from multiple owner's representatives (including Booz Allen Hamilton), and selected IBI Group. IBI conducted a thorough peer review, including examinations of Baltimore, Portland, and Atlanta's experiences, producing insider intelligence on potential CAD/AVL vendors. With that knowledge, RTD staff was able to make an informed choice about who to select. Shortly thereafter, RTD staff also visited transit agencies that had recently implemented CAD/AVL in Everett and Seattle WA and Vancouver, BC. IT project management staff feel that having an owner's representative has been a key component of the successful CAD/AVL implementation.

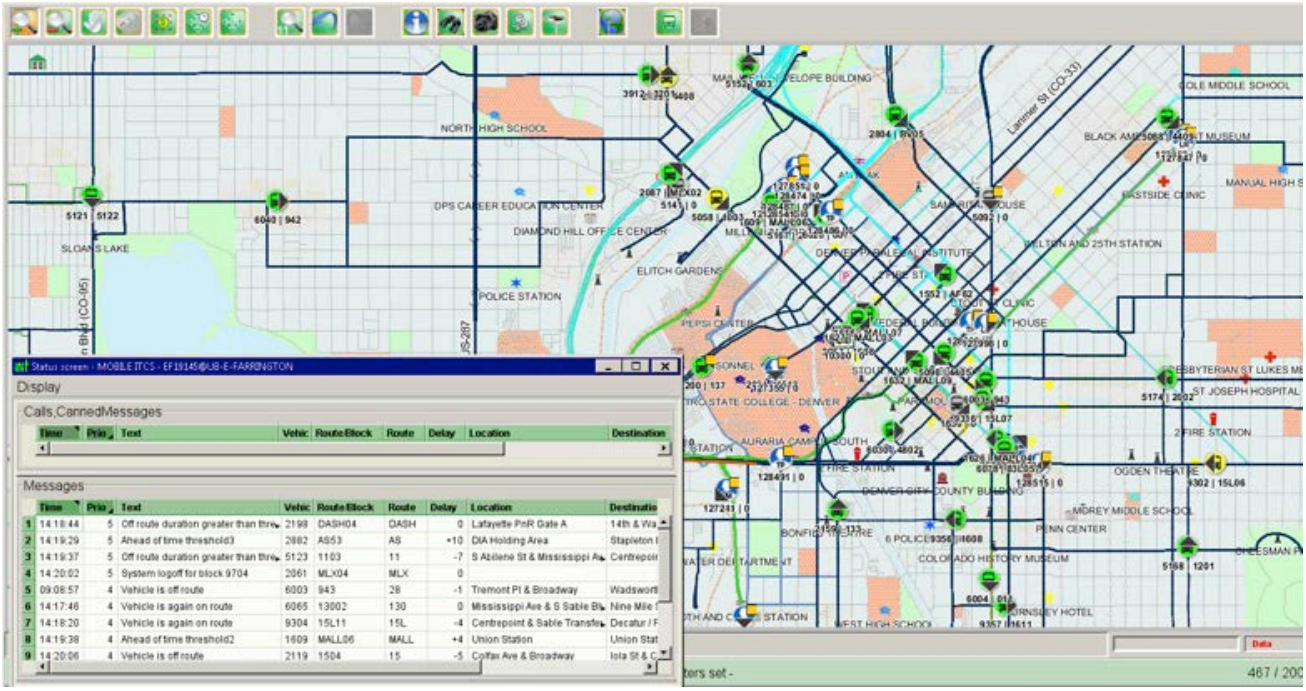
Informed by the owner's representative's findings, IT and Bus Operations worked together to create a request for proposal (RFP) for a CAD/AVL vendor. They selected Innovations in Transportation, Inc. (INIT) after a rigorous review of proposals and contacting other transit agencies that had worked with the company. Their knowledge

of INIT helped RTD staff create a contract that accounted for some of the vendor's drawbacks. For example, other agencies had informed RTD that INIT's documentation and project management were not as good as needed, so the IT department requested that INIT improve documentation and project management. The owner's representative has consistently worked with INIT to ensure that their documentation is useful for RTD.

Throughout the project, but especially in the implementation phase, the project managers ensured that end users in Bus Operations would be able to help select features and test the system. Representatives from Dispatch and Street Supervision sit on an ongoing Change Management Board, which has the authority to make decisions and troubleshoot issues as they arise. In addition, dispatchers and street supervisors have unofficial point people within their division who work directly with IT. IT has also assigned the Program Manager as a key contact within their own division to work with Dispatch and Street Supervision. Identifying point people who can understand both the operations and the technology side has helped with troubleshooting as issues and challenges arise.



IT and Bus Operations decided to roll out the CAD/AVL project in phases in order to work out issues before deploying the new system across the entire district. The project roll-out began with a "mini-fleet" in Boulder. While this first test phase showed that the system essentially worked, the schedule forced RTD to allow the rest of the fleet to be installed before passing all of the requirements of mini-fleet. These additional issues remained unresolved during the full system roll-out. In retrospect, managers would have included some contractor buses as well as more street supervisors in that first, test "mini-fleet." Because all of the fleet was installed before the "mini-fleet" phase was complete, IT and Bus Operations gradually implemented CAD/AVL through the rest of the system as the vendor installed the new equipment in all of the buses. In the meantime, Dispatch successfully operated two systems at once for approximately 14 months, while some buses still used the old system and others had been upgraded.



While the project implementation was underway, Dispatch modified their workspace, added five new workstations, and added staff in order to handle the new system. The dispatchers, who would eventually be using both the new system and the space, were heavily involved in this process. Receiving the resources to adapt the division to the new system was an important component of successful CAD/AVL implementation.

Training was also a key component of CAD/AVL success. The vendor conducted the initial training. Bus Operations trained dispatchers, street supervisors and operators and then re-trained them as necessary. For dispatchers and street supervisors, they used a "train the trainer" approach, designating super users who would learn about the system from the inside out and then train their colleagues. Operators have a user-friendly interface and require less training than street supervisors and dispatchers, but they are introduced to the system in initial operator training and then have the option to use it extensively or very little, depending on their preferences. There are training bus-in-a-box units at the Divisions for the operators to use. In addition, the training division within Bus Operations developed a video for training operators.

Throughout the process of implementation, IT and Bus Operations have provided regular updates to the Board of Directors. The Board has been supportive of the project throughout and allocated enough resources to keep the process moving without significant delays. The public has been informed of the project through the board updates, but CAD/AVL is primarily an internal-facing project so far.

Results

The CAD/AVL system was a major, seven-year project costing approximately $51M. The CAD/AVL implementation has been RTD's largest non-FasTracks project in the past decade. Like any significant project, CAD/AVL has had occasional issues and delays. Due to having an owner's representative on board, using the knowledge from the peer review, good communication channels and clear delineations of authority between IT and Bus Operations, and significant user involvement in the selection and modification of the technology, the system has performed well so far and issues that have arisen have been resolved rapidly.

So far, CAD/AVL has significantly increased both the safety and reliability of the bus system. For example, with the real-time data that now moves between Dispatch and operators, dispatchers can immediately see if a bus is running late and send a back-up out to improve reliability. Dispatchers and street supervisors also know the exact locations of accidents in real-time, meaning they can arrive at the scene and send a new bus more quickly than they could in the past. Because communications systems have improved, operators can immediately inform Dispatch or Security of incidents on buses, improving response times and passenger safety. Telephone information center (TIC) operators also have access to real-time data on bus delays, so customers who call TIC can find out when a late bus will arrive or where their bus will pick up during a temporary detour.

The next phase of the CAD/AVL project will be the provision of real-time data directly to customers through a General Transit Feed Specification (GTFS-Real Time) feed. Creating the feed requires RTD's IT department to structure the information from the CAD/AVL system and other systems into one, simple data feed so that RTD and software developers can use the data to provide trip updates (delays, cancellations, changed routes), service alerts (stop moved, unforeseen events affecting a station, route or the entire network), and vehicle positions (information about the vehicles including location and congestion level). Provision of an open data format for schedules and associated geographic information enables private-sector developers to create apps for smart phones so customers can see where their bus is in real-time and predict its arrival at their stop. In addition, consolidating and distributing the data collected through the CAD/AVL system, such as on-time performance information and passenger counts, will allow RTD to analyze bus on-time performance, identify ongoing issues with problem routes, and improve service planning.

Resources

CAD/AVL Project Management Site

Board Reports

Departments:

- Bus Operations
- Information Technology (Finance & Administration)

Contacts

- George Hovey, Manager, Program Management Office
- Eric Farrington, IT Program Manager
- Mike Gil, Deputy Assistant General Manager, Bus Operations
- Gina Callahan, General Superintendent of Street Operations
- Vaughn Townsend, Street Supervisor
- Daniel Lamorie, Dispatcher

Goal

Use maps to show that RTD is in compliance with Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the grounds of race, color and national origin.

Background

RTD must submit a Service and Fare Equity Analysis (Title VI Analysis) to the Federal Transit Administration (FTA) after significant service changes, defined by the FTA as "a 25% addition or reduction in the service hours of any route that would remain in effect for twelve (12) or more months." The Title VI Analysis must show that the service change does not have a disparate impact on low-income and minority populations as well as populations with limited English proficiency (LEP), meaning it cannot affect those populations 10% more than their non-low-income, non-minority, or English-speaking counterparts in the district. If an agency is found to be in violation of Title VI, that agency may lose its federal funding.

In 2006, RTD included Geographic Information Systems (GIS) maps in the Title VI report for the Southeast Corridor light rail opening to help demonstrate that the service addition did not have a disparate impact on protected groups. FTA responded favorably to the maps, and RTD has included maps in every Title VI report since that time.

Best Practice

RTD service planners determined that they could use GIS as a tool to help tell a story about how the agency serves the district equitably. RTD Title VI Analyses now include detailed maps drawn from census data to show how route changes will affect minority and non-minority as well as low-income and non-low-income riders within the district. Maps and aerial photos created in GIS show the density of residents by income level, race and ethnicity and LEP status with routes overlaid.

Exhibit A: Arvada

For example, the aerial photo of Arvada above shows a low-density region with a low percentage of minority residents and a low level of service provision. Using this visual, RTD can quickly communicate the low need for service in this area and justify the level of service provided.

Exhibit B: Northeast Park Hill

By contrast, the Northeast Park Hill neighborhood, above, is another low-density area due to a mix of single-family and industrial uses. That neighborhood has a far higher percentage of minority residents and a higher level of service provision than the selected area in Arvada.

In a recent Title VI Analysis, RTD showed both maps side-by-side to show how the agency determines the level of service to provide across the district, and to demonstrate that the agency equitably serves district residents.

Results

FTA was impressed with the GIS maps and illustrations that RTD provided in the Southeast Corridor Service and Equity Analysis. FTA now recommends maps in all Title VI reporting nationwide.

Resources

Zachary Van Gemert, "GIS for Title VI Compliance," GIS in Transit Conference, 2013

Departments

Bus Operations

Planning

Contact(s)

- Zach Van Gemert, Senior Operations Analyst
- Jessie Carter, Manager, Service Planning and Scheduling
- Michael Washington, Manager, Title VI

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