



Research Center:

Improve project management to set clear expectations and help assess tradeoffs

March 2020

A Report by the Office of the Auditor

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MEMORANDUM

March 25, 2020

To: Lynn Peterson, Council President
Shirley Craddick, Councilor, District 1
Christine Lewis, Councilor, District 2
Craig Dirksen, Councilor, District 3
Juan Carlos Gonzalez, Councilor, District 4
Sam Chase, Councilor, District 5
Bob Stacey, Councilor, District 6

From: Brian Evans, Metro Auditor

Re: **Audit of Research Center**

This report covers the audit of the Research Center. The audit sought to determine if project management best practices could be used to help the Research Center set clear expectations and prioritize work.

The audit found that project management practices were inconsistently applied. Project schedule, scope, costs, and risk were not always identified in proposals. There were gaps in documentation and actual project costs were unavailable. Effective project management practices can help develop shared expectations between the Research Center and its clients.

The audit also found the complexity of the Research Center's funding created challenges for the department to prioritize its work. Stakeholders wanted accurate, authoritative, and objective data. This type of data can be expensive to develop and may require ongoing resources to maintain. Without an agency-wide data and analytics investment strategy in place, the Research Center needed a more consistent and collaborative approach to prioritize projects and programs.

We have discussed our findings and recommendations with Andrew Scott, Interim COO; Heidi Rahn, Interim DCOO and Jeff Frkonja, Research Center Director. A formal follow-up to this audit will be scheduled within five years. We would like to acknowledge and thank all of the employee who assisted us in completing this audit.

Summary

This audit sought to determine if project management best practices could be used to help the Research Center set clear expectations and prioritize work. Effective project management practices create a shared understanding about what a project is expected to achieve, what it will cost, and when it will be completed. Practices vary in approach and should be tailored to teams and projects.

The audit found that project management practices were inconsistently applied. Project schedule, scope, costs, and risk were not always identified in proposals. There were gaps in documentation and actual project costs were unavailable. Although improvements were made, refinement of current practices and additional information would be needed to set clearer expectations among the project team, department management, and clients.

Improvement in project management practices was important because the complexity of the Research Center's funding had the potential to create competing and unmet expectations for how work was prioritized. Funding complexity also created challenges for the department to prioritize its work and limited department decision-making authority.

Our review also found that funding complexity created confusion. This indicated a need for more communication or documentation to increase clarity across stakeholders. During our review it became clear there were different ideas about Research Center funding. This was important because different ideas impacted expectations about what the Research Center should prioritize and deliver.

Finally, sound investment decisions should be strategically aligned with an agency's goals and result from a criteria-based selection process. Without an agency-wide data and analytics investment strategy in place, the Research Center needed a more consistent and collaborative approach to prioritize projects and programs. This included decisions related to starting something new, maintaining what was already in place, and determining what to discontinue.

We made six recommendations to the Research Center for setting clear expectations and prioritizing work. We also recommended that Metro ensure resources and expectations for the Research Center are aligned.

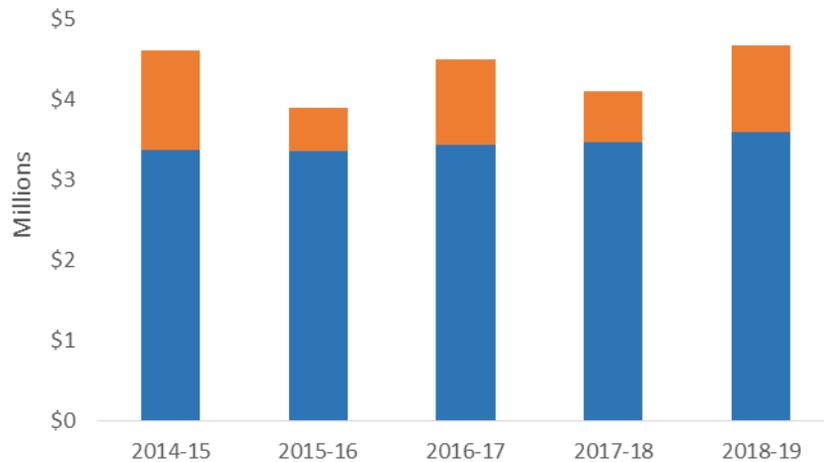
Background

The Research Center is a Metro department responsible for providing information for policy-making and operations. The department provides data and analysis for a variety of clients and users. The types of data and analysis vary, but include geographic data, statistical analyses, and forecasts. The department also produces maps, infographics, and interactive online tools.

The department had 28 full time equivalents (FTE) of budgeted staff between fiscal years (FY) 2014-15 and 2017-18. In FY 2018-19, budgeted FTE increased to 31. The increase was in part to support the development of an agency performance measurement tool.

After adjusting for inflation, department expenditures for personnel and materials and services increased by slightly over one percent between FY 2014-15 and 2018-19. The majority of expenditures were for personnel services but the largest fluctuations were for materials and services.

Exhibit 1 Personnel Services and Materials and Services expenditures increased by about 1% compared to five years ago



Source: Auditor's Office analysis of financial data, July 1, 2014 to June 30, 2019 (adjusted for inflation)

The alignment between the Research Center's work and how that work was funded was complex. Work could be classified based on division, type of service, or funding source. The Research Center's clients and users included other Metro departments, Metro decision-makers, other governments, and the public. The department was organized into three divisions. For the most part, the divisions served many of the same clients and users. However, each division generally met client and user needs in a different way.

In general, the Client Services division provided technical assistance and analysis to visualize data and make it easier to understand. The Modeling

Services division developed and maintained tools that could be used to forecast data and present different alternatives for decision-makers. The Enterprise Services division made data accessible by maintaining databases and customizing user tools.

The current organizational structure was created in FY 2014-15 to make three clearly defined work units. This structure was intended to increase transparency for the department's business model and sources of funding.

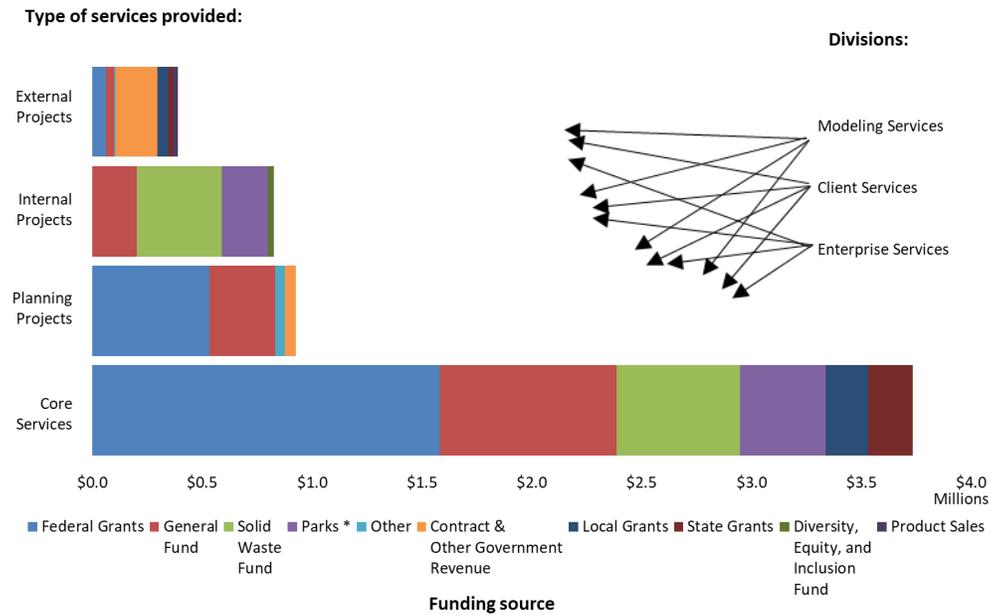
Each division provided project-based work to internal and external clients. Each division also helped maintain the department's agency-wide data sets and tools. This work was sometimes referred to as core services and sometimes as program work. In this report, we will use "program" to refer to core services.

Programs included the maintenance of tools used to forecast and model transportation and socioeconomic data. They also included maintenance of the geographic information system (GIS) data in the Regional Land Information System (RLIS). Over 100 data sets were housed in RLIS. Development and maintenance of Metro's performance measurement tools and databases were another example of a Research Center program.

The distinction between projects and programs was not always easy to make. For instance, maintaining the model used for Metro's Regional Transportation Plan is part of a program. Using that model to update the Regional Transportation Plan would be a project. Additionally, while some projects could be finite, others could turn into a series of projects that then became a program.

There was also a lot of complexity in how the Research Center was funded. Funding came from multiple sources and varied. Nearly every source paid for both programs and projects. Some funding, such as grants, was restricted to specific activities.

Exhibit 2 The relationship between divisions, services provided, and funding was complex



Source: Auditor's Office summary of Research Center budget data for planned funding
*Including, but not limited to, Parks and Natural Area Levy and Bond funds

There have been ongoing efforts to improve the Research Center's business model and associated funding streams. Business models provide a roadmap for how services will be delivered. They indicate what an organization's product will be, how it will be produced, and potential clients. Business models also include some type of funding model that identifies funding sources to ensure they cover costs.

Business and funding models vary. For example, internal departments such as Human Resources provide services that benefit all employees but don't necessarily provide a direct service to the public. Some organizations use cost allocation plans to redistribute these costs across departments that do provide direct services to the public. During this audit, additional efforts were underway to evaluate the department's funding. We did not audit those efforts.

Results

The complexity of the Research Center’s funding created challenges for the department to prioritize its work. This meant the department had to be prepared to redirect and reprioritize resources throughout the year. It also limited the department’s decision-making authority in starting something new, maintaining what was already in place, and determining what to discontinue.

Challenges to prioritize work were also likely to continue. This was because there was pressure to maintain existing services while also innovating in an environment of changing technology. Stakeholders wanted accurate, authoritative, and objective data. This type of data can be expensive to develop and may require ongoing resources to maintain, but budgeted resources were limited.

Funding complexity also made it difficult to see the connection between department costs and benefits. This had the potential to create confusion and unmet expectations for how work was prioritized. Effective project management practices can minimize confusion and help develop shared expectations. They do this by creating a shared understanding about what a project is expected to achieve, what it will cost, and when it will be completed.

For these reasons, and because the department has more control over how it manages projects, we took a case-study approach to assess the implementation of project management practices. Consistent and reliable project-level information can increase trust among stakeholders and be used to evaluate tradeoffs between costs and benefits. Learnings from the project level can also inform larger discussions about the strengths and weaknesses of various funding models.

The audit found opportunities for improvement in three areas to set clearer expectations and inform larger discussions. Specifically, the audit found:

1. Project management practices were inconsistently applied,
2. Funding complexity created confusion, and
3. Competing demands limited prioritization.

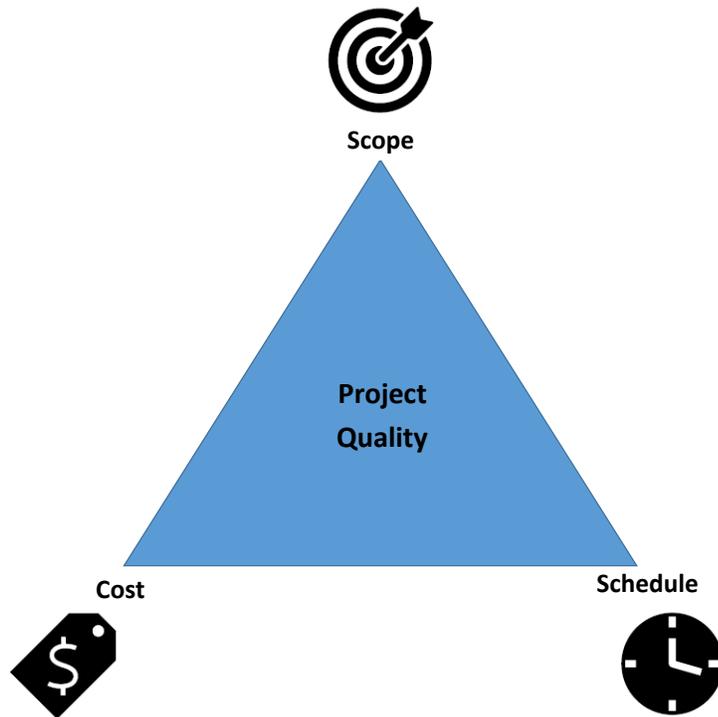
**Project
management
practices
inconsistently
applied**

Refinement of project management practices was necessary to set clearer expectations for project development and delivery. Project schedule, scope, costs, and risk were not always identified in project proposals. There were gaps in documentation, and actual project costs were unavailable. As a result, current practices did not set clear expectations for what projects were supposed to achieve, what it would cost to get there, and a timeline for when results could be expected.

The execution and overall quality of a project is constrained by several factors, including scope, schedule, and costs. Changes to any one constraint

without adjustment in the other two can impact project quality. Some projects may be constrained by one factor more than the others. Project management practices include tools to help plan for, document, and monitor these constraints throughout the life of a project.

Exhibit 3 Three constraints can impact project quality



Source: Auditor's Office summary of project management best practices

Project management practices vary in approach and should be tailored to teams and projects. For instance, some view an agile approach as more appropriate for complex projects where there is a high degree of uncertainty. This may differ from a more traditional project management approach because agile approaches deliver project scope iteratively and incrementally. As a result, some parts of the scope may change, some may not be carried out, and some may be revisited as part of a different project or additional project phase. Client involvement is expected in making these decisions.

To learn more about how the department implemented elements of project management practices, we reviewed documentation from five bodies of work (projects) for:

- Identification of scope, schedule, costs, and risks
- Evidence that scope, schedule, costs, and risks were tracked and communicated during the project

Exhibit 4 We reviewed five projects from Enterprise Services

The Regional Illegal Dumping (RID) Patrol Collector:	
Project Description	Online reporting tool to identify illegally dumped garbage in the region. It included a field application to track sites and waste information, an administrative function, and a data dashboard.
Client	The RID Patrol (Property and Environmental Services)
Timeline	Developed in phases. Began conceptually in early 2016 and mostly completed by August 2018.
Cost	Unknown
The Pesticide Application Record System (PAR)	
Project Description	Developed to meet legal reporting requirements and standardize reporting for pesticide application on Metro property. It also included an administrative data dashboard.
Client	Integrated Pest Management (Property and Environmental Services)
Timeline	Developed in phases. Began conceptually in early 2017 and mostly completed by August 2019.
Cost	Unknown
The Economic Value Atlas (EVA)	
Project Description	An interactive online tool that mapped and scored regional economic indicators. It was co-developed with the Research Center to increase alignment between regional planning and economic outcomes.
Client	Investment Areas (Planning and Development)
Timeline	The project began conceptually around FY 2015-16. The project was preliminarily launched in December 2018.
Cost	Unknown
By the numbers (BTN)	
Project Description	Under development to be an interactive online tool for reporting Metro's six regional outcomes and Metro department-level performance measures. It was also planned to include an online data library.
Client	Unclear
Timeline	In its current form, began conceptually in about January 2018. Reporting of the six regional outcomes was estimated to be complete in Spring 2020.
Cost	Unknown
Crashmap	
Project Description	Under development to be an interactive map showing five years of regional motor-vehicle related crashes. It summarized crash data by location.
Client	Regional Planning (Planning and Development)
Timeline	In its current form, began conceptually in at least December 2018. Was still under development at the time of the audit.
Cost	Unknown

Source: Auditor's Office analysis of project documents

The Research Center acknowledged the need to improve project management and several improvements had been made since FY 2015-16. For example, the use of project proposal templates improved. Project accounting codes were developed to better track employee time. The agile approach was identified as a way to manage the complexity of projects and a new project management tracking system was selected. However, refinement of current practices and additional information would be needed to set clearer expectations among the project team, department management, and clients.

Scope, schedule, cost, and project risk were not always clear

Scope, schedule, costs, and project risk were not always clear. This increased the possibility for different perspectives about when a project begins or ends. This also increased the possibility for different expectations about whether unfinished or ongoing work should carry forward automatically or if it should be a new project.

Clearly identifying scope, schedule, costs, and project risk was important for three reasons. First, an agile approach to carrying out these types of projects may look different than a more traditional project management approach. Some of the benefit in using an agile approach for these types of projects is that it allows for more flexibility and quicker responses to changes that may happen over time. This increases the need for communication to ensure everyone is on the same page about how the project will be managed.

For example, some projects were based on large visions but carried out in different phases over multiple years. We saw an example where one person thought a project was complete and another thought it was in process. Each of these perspectives was understandable. Phases of the project were complete. At the same time, more work was identified as needed to carry out the full project vision.

Second, clearly documented project schedules would help set expectations for the number of hours needed to complete a project as well as the estimated start and end dates. Research Center staff worked on more than one project at a time. This meant that work planned to take 40 hours would not necessarily be finished in one week.

Third, despite improvements, little was in place to set and document the long-term expectations for data updates. Some projects required ongoing maintenance and data updates. In some cases this work may be carried out under a new project and in other cases it may be absorbed into a program. Lack of documentation about maintenance and data update needs can be problematic in the event of employee turnover or when additional funding sources would be necessary.

We also found that a project's overall risk was identified more clearly for some projects. Some project proposals hinted at project risk by listing them as assumptions. One proposal we reviewed more explicitly labeled the project risk. The way risk is framed can impact expectations about a project.

As a result, clearly labeling project risks was important. This was because changes in technology and technological dependencies increased the chance a project wouldn't be fully carried out. The success of one project we reviewed depended on a certain software that had not been implemented. This was identified as an issue to consider that could impact the project. Stating more explicitly what that impact could have been would have made the project risk more clear.

Identification of project risk was also important because some projects were more constrained by scope, some by schedule, and some by cost. Each project type required different management and was subject to different risks. For example, one project's scope was subject to subject-matter expert and stakeholder feedback. This meant the project was at higher risk to take longer or cost more than what was initially expected. This was not identified as a risk. During our review deadlines for this project were extended.

A different project was more constrained by schedule. The proposal for that project ensured a shared understanding of how the project would be managed. Specifically, it outlined that the work would result in a minimum level of functionality by the deadline but would involve the client to ensure the project matches as closely to the vision as possible. This approach was clear in the proposal, which ensured the client was aware of the potential trade-offs needed to meet the deadline.

Cost reporting was insufficient

Actual project costs were not available for the projects we reviewed. As a result, the true costs of delivering a project's vision were not documented. Without better cost information, it would be difficult for clients or the Research Center to compare budgeted funding to actual costs. Also, lack of cost information reduced the department's ability to refine its cost estimates over time.

Because we could not find detailed project cost information, we tried to determine costs for the cases reviewed. Two things made this impossible.

- **Not all project work had discrete tracking codes for accounting purposes.** Some of the larger projects we reviewed shared codes with other projects. Also, some projects overlapped, so distinction was not always possible.
- **The appropriate hourly rate for budgeting and billing purposes was unclear.** Amounts varied across reported information. We were informed that \$125 per hour was used for planning purposes. We saw examples that ranged from \$44 to \$125 per hour.

Exhibit 5 Precise costs were unknown

Project	Personnel Costs*
RID Patrol Collector	<p>Ongoing maintenance:</p> <ul style="list-style-type: none"> • \$20,700 (FY 2017-18 to 2018-19) <p>Development costs unknown. For example:</p> <ul style="list-style-type: none"> • For Enterprise Services, they could be less than \$132,000 (FY 2016-17 to 2018-19) • Department wide they could be at least \$198,600 (FY 2016-17 to 2018-19)
Pesticide Application Record System	<p>Ongoing maintenance:</p> <ul style="list-style-type: none"> • \$17,700 (FY 2017-18 to 2018-19) <p>Development costs unknown. For example:</p> <ul style="list-style-type: none"> • It could be between \$12,500 and \$68,963 (FY 2016-17 to 2018-19) • It could be between \$37,400 and \$43,070 (FY 2016-17 to 2018-19)
Economic Value Atlas	<p>Ongoing maintenance:</p> <ul style="list-style-type: none"> • \$5,063 (FY 2018-19 to October 2019) <p>Development costs unknown. For example:</p> <ul style="list-style-type: none"> • At least \$64,000 was charged specifically to the Economic Value Atlas (FY 2016-17 to 2018-19) • Documents indicated some work may have been charged to a department program.
By the Numbers	<p>Development costs unknown. For example:</p> <ul style="list-style-type: none"> • \$31,700 has been charged directly to “By the Numbers” (through FY 2018-19) • Between FY 2017-18 and 2018-19, at least \$383,800 can be attributed to the Research Center’s performance measures program. This may have included work on By the Numbers.
Crashmap	<p>Development costs:</p> <ul style="list-style-type: none"> • \$41,000 (November 2018 through October 2019)

Source: Auditor’s Office analysis of Metro financial data and other management reports

*Some amounts may not include overhead

Reasons were offered as to why different information was reported. For example, labor costs may not always include overhead. Reported amounts may be based on the month the work took place or the month they were posted in the accounting system. This also could cause differences. However, because there were gaps and variation in the information reported we could not confidently determine actual project costs.

Without adequate cost information, the Research Center could not apply lessons learned to improve project estimates over time. This seemed particularly significant given the interest in department services. The new project management tracking system was reported as having the potential to track project cost and schedule. However, its full functionality was still being explored at the time of the audit.

Gaps existed in documentation

A more standardized approach to document project information was needed to create a shared understanding among the project team and clients about project details and project status. Proposals lacked signatures, which meant agreement about project details was undocumented. Change was managed informally and processes to document progress were unclear. Documents also existed across several sources, which made it difficult to determine the most up-to-date project information.

Conversations took place about scope, schedule, and costs, but the proposals we reviewed were not signed. A proposal for one project we reviewed was updated. It had an edited schedule and more clearly stated project assumptions than the original proposal. The updated version also included an explanation about how the agile approach would be used to manage the project. However, because the original and updated proposals were unsigned, there was nothing to document the changes were seen or agreed to by the client.

Department work was also subject to change. In some cases, this required a redirection of resources, but guidance to navigate those decisions was not formalized. We saw an example where an employee was redirected to focus on a high-profile project. We were also informed of an example where delays in state procurement processes impacted the start date of one project by several months.

Redirecting work increased the Department's risk. It increased the risk for unmet expectations because shifting focus to one project could come at the expense of another project. It also increased the risk that specific funds would be used differently than allowed.

We were informed some degree of flexibility was needed to make these decisions and that discussions took place on a case-by-case basis. However, a documented decision-making framework would ensure decisions are as consistent as possible and in compliance with funding restrictions.

Documentation of project progress against the initial estimates was also lacking. We identified examples of several tools used in other parts of Metro that could be used to track and report project information. Some tools may only be required when projects are estimated to exceed a certain cost threshold. The size of the Research Center's projects may not always require this type of formality. However, these examples show the type of information that can be helpful in managing projects.

Exhibit 6 Project status reports communicate potential variances

SCHEDULE VARIANCE

START DATE		COMPLETION DATE	
BASELINE	REVISED	BASELINE	REVISED
mm/dd/yy	mm/dd/yy	mm/dd/yy	mm/dd/yy

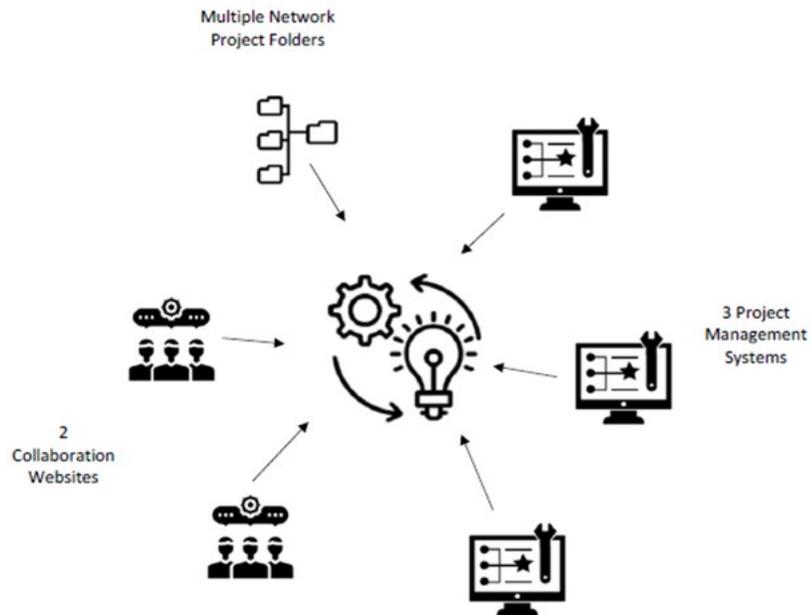
BUDGET / COST VARIANCE

BUDGET BASELINE	COSTS TO DATE OF THIS REPORT	ESTIMATE AT COMPLETION	BUDGET VARIANCE
\$xx,xxx	\$xx,xxx	\$xx,xxx	\$x

Source: "Project Status Reports," MetroNet Project Management Resources (<https://metronet.oregonmetro.gov/services/project-management-resources>)

Finally, project information existed across several locations. For example, documents were available in network project folders, two collaboration websites, and three project management systems. Some documents contained conflicting information. As a result, it was necessary to review several sources of information to get a basic understanding of a project.

Exhibit 7 Project information existed across several sources



Source: Auditor's Office analysis of project information.

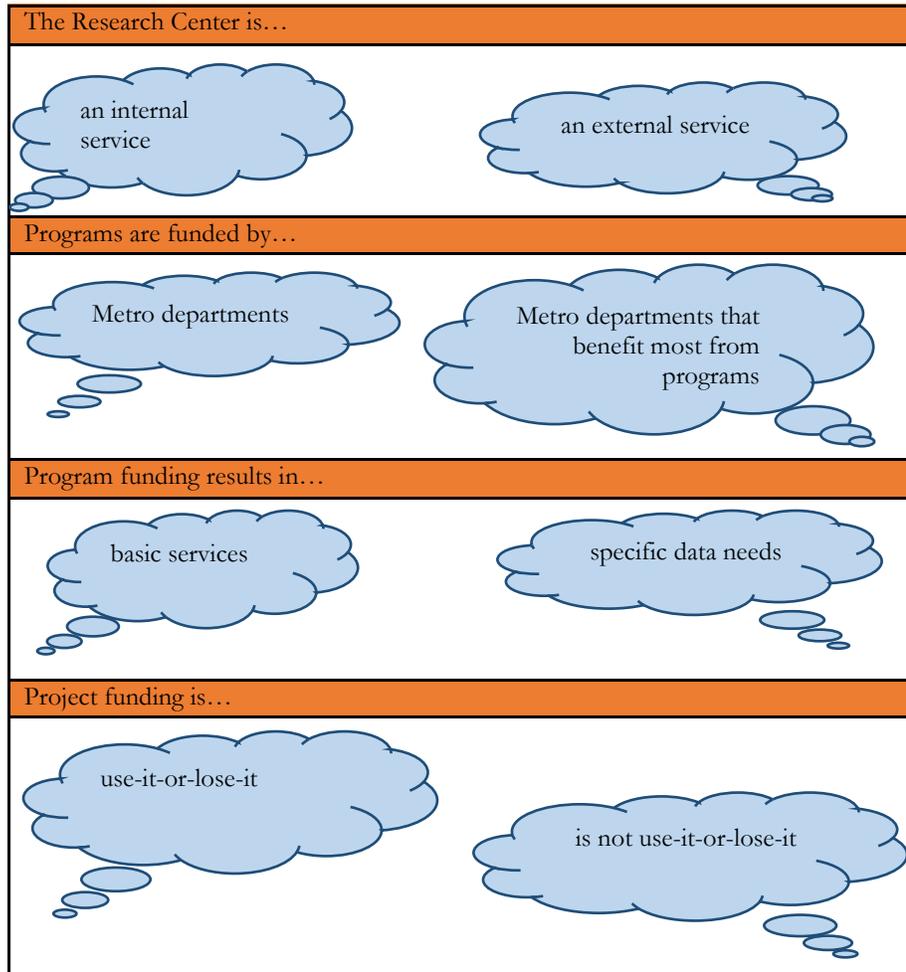
Funding complexity created confusion

Clarification of department finances was necessary to reduce confusion. Lack of clarity about funding combined with variability in project management authority limited Metro's ability to assess tradeoffs between different funding models. During our review it became clear there were different ideas about Research Center funding. This was important because different ideas impacted expectations about what the Research Center should prioritize and deliver.

At the same time, the department's level of control varied based on whether something was considered a project or program. Relationships among the Research Center, its customers, and stakeholders were likely to influence future funding decisions. For example, for projects funded under a use-it-or-

lose it agreement, there may be assumptions that another project can be substituted if changes occur during the year. Alternatively, changes that could impact the maintenance and updates for existing programs may result in clients considering outside contracts to ensure timeliness.

Exhibit 8 There were different ideas about Research Center funding



Source: Auditor's Office analysis of interviews and department information

We also found there were different ideas about Research Center funding. The differences were subtle but mattered because they represented perspectives of incoming funding sources, department operations, and department finances. This indicated a need for more communication or documentation to increase clarity across stakeholders. Reaching a shared understanding of funding was also needed to identify and reach agreement on potential funding models.

For example, concerns were shared during the audit about funding shortages. If funding shortages existed because the department's hourly rate did not cover actual costs, then a solution could be to identify and apply the appropriate hourly rate. If shortages existed because clients did not use the

budgeted amount of project time, then implementing a formal agreement or use-it-or-lose-it policy may help. If misalignment between what the department provided and how those things were funded was the primary issue, then additional clarification and distinction may be necessary to pinpoint where changes were most needed.

Another potential cause of misunderstanding was related to technology. Financial tracking took place in a series of spreadsheets. The lack of direct integration with Metro's accounting system made it more difficult to understand how money flowed in and out of the department. We were informed this was because Metro's budgeting and accounting system could not calculate overhead costs. We also learned the system could make those calculations, but the functionality had not been implemented. The lack of automation also increased the risk for data input errors.

Competing demands limited prioritization

Without an agency-wide data and analytics investment strategy in place, the Research Center needed a more consistent and collaborative approach to prioritize projects and programs. To its credit, the department made efforts to better prioritize its work. However, the competing demands created by the department's funding model, in combination with the competing demands created by Metro-wide goals, limited the department's ability to prioritize its own work.

The department served multiple clients and received funding from multiple sources. This created competing demands. When changes occurred to one project or program, it created the need to reevaluate other planned work. The ripple effects of these decisions had the potential to impact the scope, schedule, and budget across the Research Center's portfolio of work.

Sound investment decisions should be strategically aligned with an agency's goals and result from a criteria-based selection process. Tools that can help an agency prioritize its investments include:

- strategic plans,
- criteria-based scoring systems, and
- governance structures.

The Research Center had a strategic plan, but it was not clear if there was a long-term agency-wide governance structure to help it assess tradeoffs using consistent criteria. One goal in the Research Center's strategic plan was to provide client value through excellent customer service. This had the potential to create competing priorities because the department served multiple clients and received funding from multiple sources.

Competing demands also made it difficult to use a criteria-based scoring system to prioritize work. In 2016, the department developed a criteria-based framework to quantify some costs and benefits of RLIS data. The framework identified which data sets were most used and how much effort it took to maintain them.

Exhibit 9 Simplified comparisons can start a conversation about what to prioritize

Potentially high value RLIS data sets: Low Maintenance, High Downloads 34%	Potentially high value RLIS data sets: High Maintenance, High Downloads 8%
Potentially low value RLIS data sets: Low Maintenance, Low Downloads 36%	Potentially low value RLIS Data sets: High Maintenance, Low Downloads 1%

Source: Auditor's Office analysis of RLIS production data

However, it was not enough to prioritize decisions. This was because some benefits were more difficult to quantify. For instance, a comparison between the maintenance of data sets to their number of downloads showed about 37% potentially provided low value. A closer look showed that some of these data sets were identified as critical to Metro even though they were downloaded relatively infrequently.

We tried to apply a similar framework to projects during this audit. It was difficult to determine what was critical to Metro given the variety of programs and services it provided to the region. Narrowing the list of potential benefits could be done by focusing first on those that impact multiple beneficiaries. Using Metro's six desired outcomes could be another way to develop prioritization criteria that would apply across beneficiaries.

However, any criteria-based selection process would need to be based on an agreed-upon methodology. This is because some of the six outcomes may carry more importance than others, depending on the client. Spending time to help stakeholders understand the methodology and criteria could reduce the time needed to have those conversations for each prioritization decision.

In Fall 2019, a data asset committee was developed to review and prioritize data from a Metro-wide perspective. However, it was not clear how long the committee would be in place, or to what extent it would apply to the Research Center's overall project and program portfolio. It will be important to address these issues to establish a consistent process for evaluating the costs and benefits of various priorities.

Recommendations

To set clear expectation for projects, the Research Center should:

1. Use project proposals to document the scope, schedule, budget, and risks for each project.
2. Formally document the status of projects by tracking the scope, schedule, and actual cost of each project.
3. Ensure project proposals and project status information is available to project teams, clients, and management.

To help prioritize its work, the Research Center should:

4. Establish a process to reach agreement on the scope, schedule, and cost of maintenance and data updates for projects and programs.
5. Establish and document a process for reviewing and approving proposed changes to ongoing projects and programs among project teams, clients, and management.
6. Complete work to prioritize agency-wide data for FY 2020-21, and update as things change.

To ensure resources and expectations for the Research Center are aligned, Metro should:

7. Document the funding model for the department and communicate it to department stakeholders.
8. Determine the need for an ongoing governance structure to prioritize agency-wide data after FY 2020-21.

Scope and methodology

This audit sought to determine if project management best practices could be used to help the Research Center set clear expectations and prioritize work. To the extent possible, audit scope was limited to work initiated by the Enterprise Services division of the department between FY 2015-16 and 2018-19. Specific audit objectives were:

- Identify opportunities for the Research Center to prioritize work and set realistic expectations for data management.
- Determine if the identified methodology for prioritizing RLIS data could be adapted to apply to all data management responsibilities.

To meet the objectives, we interviewed Metro employees and other governments responsible for similar functions. We reviewed department financial information, budget documents, and planning documents. To gain a general understanding of project management and IT investment strategies, we reviewed information from the Project Management Institute, the Government Accountability Office, and the Office of Management and Budget.

We used a case study approach for the audit focused on five projects. We developed a list of potential projects based on information from the division manager, interviews, department finances, and the annual budget. We judgmentally selected five projects considering factors such as project timeline and client variety. We used our judgment because project definition made it difficult to construct a complete list from which to select a statistically representative sample. Accordingly, what we found may not apply to all projects.

To determine if project management practices could help set clear expectations, we reviewed project documents and conducted additional interviews. To identify project cost information, we reviewed additional financial reports. This included reports from finance staff, department management, and data from Metro's accounting system.

We learned about the department's previous and current efforts related to prioritizing work. We modified the framework from one of those efforts and applied it to two of the cases. We did this to determine if it could be applied more generally.

The Research Center was involved in improvement efforts during the course of the audit. Specifically, a consultant reviewed RLIS data, a committee was formed to prioritize agency-wide data efforts for FY 2020-2021, and efforts were underway to improve the accuracy of the department budget. We did not audit these efforts.

This audit was included in the FY 2019-20 audit schedule. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Management response



Metro

600 NE Grand Ave.
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Date: Friday, March 20, 2020
 To: Brian Evans, Metro Auditor
 From: Jeff Frkonja, Research Center Director
 Subject: Research Center Audit Response

Recommendation	Do you agree?	If Agree, what are the proposed plans for implementing solutions? If Disagree, please provide reasons.	Proposed timetable?
Recommendations regarding project management			
1. Use project proposals to document the scope, schedule, budget, and risks for each project.	Yes	As the audit report mentions ¹ at the time of the audit the Research Center (RC) was already in the process of upgrading its project management (PM) systems and protocols as a result of lessons learned during the Metro FY18-19 Employee Engagement Survey. The in-progress PM upgrades address recommendations 1 through 3. To date, the RC has: <ul style="list-style-type: none"> • Reorganized to put the software development projects under one manager in one Division. 	In-progress PM upgrades scheduled for completion by June 30, 2020 (end FY19-20).
2. Formally document the status of projects by tracking the scope, schedule, and actual cost of each project.	Yes	<ul style="list-style-type: none"> • Trained staff on both Agile and Plan-Based project management techniques and tools, how to choose the best PM approach, and how to manage change. • Procured and deployed cloud-based software to track project status and tasks; linked development projects to charters showing scope, schedule, budget, and change-management processes; and exposed such project information to staff, clients, and managers. • Reinforced manager annual goals (already in existence) requiring compliance with project management best-practices. 	
3. Ensure project proposals and project status information is available to project teams, clients, and management.	Yes	Activities remaining to be completed: <ul style="list-style-type: none"> • Complete deployment of the project-tracking software and protocols throughout all Divisions of the RC. • Deliver additional staff training and “refresher” coaching. • Finish in-progress deployment of portfolio-management practices necessary for project and program oversight by the department Director and management team (see next section). 	

¹ “...several improvements had been made since FY 2015-16.” *Research Center: March 2020--A Report by the Office of the Auditor.* p10.

Recommendation	Do you agree?	If Agree, what are the proposed plans for implementing solutions? If Disagree, please provide reasons.	Proposed timetable?
Recommendations regarding work prioritization			
4. Establish a process to reach agreement on the scope, schedule, and cost of maintenance and data updates for projects and programs.	Yes	As the audit report mentions the Research Center (RC) has been in the process of upgrading its project management (PM) systems and protocols. The recommendations regarding reaching agreement about priorities across projects/programs (including long-term maintenance) and addressing change-management across multiple projects/programs enter the realm of portfolio management. As a result of the in-progress PM upgrades the RC Director and management team identified the fact that the department's previous portfolio tracking system (spreadsheet-based) and practices were insufficient. As an adjunct to the PM upgrades the RC is also upgrading its portfolio-management system and protocols. This work addresses recommendations 4 and 5.	In parallel with project management upgrades (by June 30, 2020).
5. Establish and document a process for reviewing and approving proposed changes to ongoing projects and programs among project teams, clients, and management.	Yes	In-progress activities: <ul style="list-style-type: none"> • Using features of the project-tracking software mentioned above to create portfolio-management tracking "boards" built from the clients' perspectives; • Documenting and implementing regular, cyclical portfolio review in standing client-RC management meetings; • Implementing practices to push portfolio-level decisions into the project-level teams. 	
6. Complete work to prioritize agency-wide data for FY 2020-21, and update as things change.	Yes	The audit report mentions ² an innovation the RC prototyped in Fall 2019: a multi-department "Data Asset Committee" to scope and prioritize enterprise (Metro-wide) data assets. The RC created this committee with COO and DCOO support in response to a series of emerging data needs across Metro. The Committee's intended purpose was to address exactly the types of cross-cutting prioritization and resourcing issues raised in the audit report, many of which are not under RC's direct control. RC plans to conduct an after-action review of the Committee. See recommendation 8 for more on this topic.	See item 8 below.

² "...a data asset committee was developed to review and prioritize data..." *Research Center: March 2020--A Report by the Office of the Auditor.* p10.

Recommendation	Do you agree?	If Agree, what are the proposed plans for implementing solutions? If Disagree, please provide reasons.	Proposed timetable?
Recommendations regarding aligning resources and expectations			
7. Document the funding model for the department and communicate it to department stakeholders.	Yes	<p>Research Center activities that serve all Metro can legitimately be funded by all types of revenues. As the audit report points out though, this “fair” approach does make a complex budget structure. In January 2019 the Metro COO, DCOO, Planning Department Director, Research Center Director, CFO, and the supporting Finance Manager agreed that the Planning and RC budgets needed to be reformed to allow better strategic decision-making regarding the alignment of revenues to programs and projects. Work on this effort was delayed by the change in CFOs but is now back in progress. This is a complex effort requiring system upgrades, stakeholder engagement, and financial process change and improvement—it will take some time.</p> <p>In-progress activities:</p> <ul style="list-style-type: none"> • Moving all RC budgeting into TeamBudget, Metro’s standard budget tool, and upgrading it to handle the many-to-many revenue-to-program relationships inherent in the RC business • Converting all of RC’s budget to a cost-allocated business model • Restructuring RC’s budget to, as much as possible, simplify revenue alignment to programs • Clearly documenting the new structure and model and communicating it to all department leaders and finance managers • Thoroughly testing the new structures and systems. 	June 30, 2021
8. Determine the need for an ongoing governance structure to prioritize agency-wide data after FY 2020-21.	Yes	As mentioned in the item 6 response, RC prototyped one potential solution to the need for agency-wide enterprise data governance, and will conduct an after-action assessment of that committee. In addition to those findings the RC has also recommended to DCOO a broader strategic planning exercise for the department, potentially under the umbrella of an agency-wide strategic planning activity requested by the Metro Council President. RC’s desired outcome is a functional, multi-department prioritization mechanism for RC work. Both Metro leadership and RC will need to endorse and resource such planning for it to succeed.	To Be Determined



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