King County Auditor's Office
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King County

Bus Part Rebuilds: More Planning Needed to Ensure Effectiveness

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April 26, 2016

Executive Summary

Transit's Component Supply Center (CSC) saves money by rebuilding used parts. However, Transit lacks key information and processes necessary to make the best decisions about what parts to make and what parts to buy. We recommend Transit address these issues by revisiting its make vs. buy policy, improving planning, and working with the labor union to improve CSC outcomes.

King County Auditor's Office

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Bus Part Rebuilds: More Planning Needed to Ensure Effectiveness

Report Highlights

April 26, 2016

Why This Audit Is Important

Transit's Component Supply Center (CSC) performs specialized maintenance activities and, by rebuilding parts, has the potential to save money. However, a 2014 peer review by the American Public Transportation Association raised concerns about how decisions are made at the CSC and suggested that its resources could be better utilized. This audit assessed how Transit decides to make or buy bus and trolley parts, and the extent to which it has the structure in place to ensure that the most cost-effective decisions are being made.

What We Found

CSC can demonstrate examples of how its expertise results in substantial cost savings. However, data reliability issues, the shortcomings in King County Transit's Rebuild Cost Estimating policy, and CSC's lack of adherence to the policy raise questions about whether CSC is rebuilding parts that would be less costly to procure elsewhere, or buying new parts that would be less costly to rebuild. This is of particular concern with respect to the potential to buy externally-rebuilt parts, because little effort is made to compare the cost of internal rebuilds to external rebuilds. CSC's full potential is not being realized because of labor provisions and a lack of planning. With labor negotiations taking place in 2016 and a significant shift in its workforce over the next five years, Transit has a unique opportunity to plan, collaborate, and resolve issues with inefficiencies. Doing so in a thoughtful way can ensure that CSC is better prepared for future needs, and that its activities generate the most value to the county.

What We Recommend

We recommend that Transit improve and enforce policies related to the make vs. buy decision, improve the reliability of performance data, conduct planning aimed at improving how CSC resources are allocated, and work with labor to improve flexibility over resource allocation.

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1. Examples of Value Added by Component Supply Center

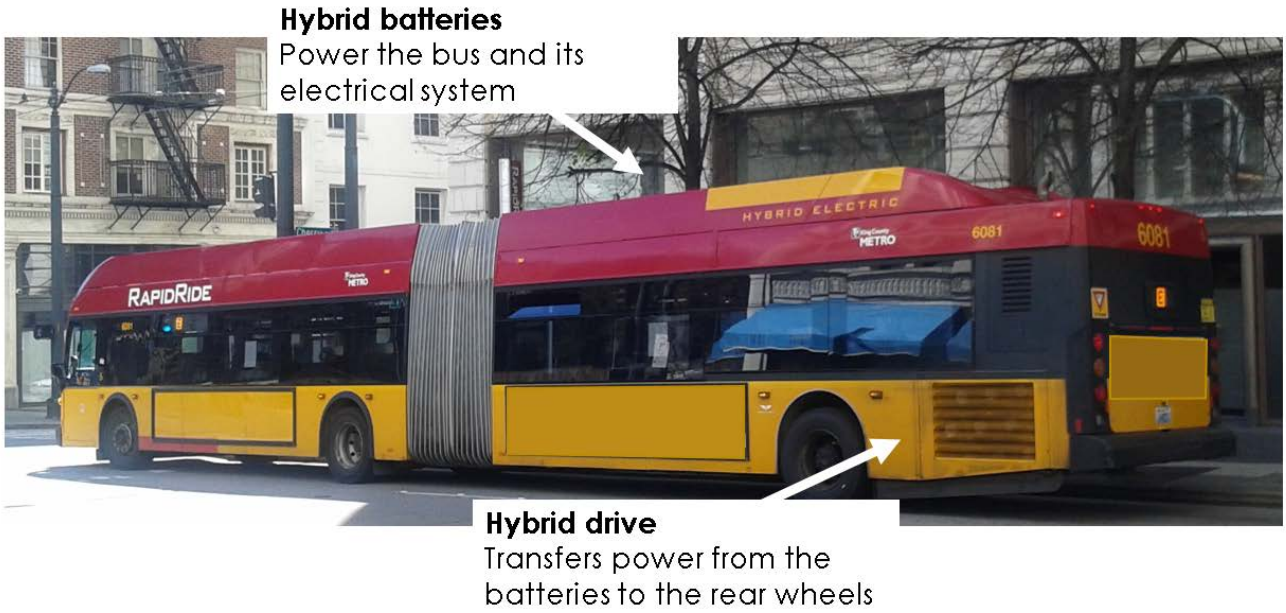
Section Summary

Component Supply Center (CSC) provides specialized expertise that saves money. CSC delivers services beyond the routine maintenance activities performed at transit bases. During our site visits, CSC demonstrated how its expertise is being used to diagnose fleet maintenance problems and develop cost-effective solutions.

Rebuilding parts can save money

CSC saved the county money by diagnosing and resolving premature failures of critical hybrid bus components. A significant portion of the King County Transit fleet is made up of diesel/electric hybrid buses. King County Transit experienced issues with the premature failure of the hybrid drives and is replacing hybrid battery packs that are reaching the end of their useful lives.

Exhibit A: CSC developed ways to rebuild two critical hybrid bus components.



Source: King County Auditor's Office

CSC saves money by rebuilding hybrid drives instead of buying new units. CSC mechanics diagnosed the causes for the premature failure of hybrid drives and developed a cost-effective process to rebuild them. The CSC rebuilt hybrid drives cost about $26,000 per unit, compared to $147,000 per unit from the manufacturer. Recognizing the potential for rebuilding the parts themselves, several other transit organizations from the U.S. and Canada sent representatives to learn from CSC expertise in identifying and resolving issues with the hybrid drives.

1. Examples of Value Added by Component Supply Center

CSC generates savings by rebuilding hybrid battery packs rather than buying new ones. Another expensive component of hybrid buses is the battery pack, which powers the electric motor and electric systems. While King County Transit has not experienced an issue of the premature failure of the battery packs, they do wear out. It costs $43,500 to buy a new battery pack. The cost of CSC rebuilds is between $34,000 and $39,000. CSC has developed innovative ways to source parts and resolve issues with these battery packs. Additional details about the innovative ways that the CSC is rebuilding hybrid bus components are provided in Appendix 1.

2. Rebuild Cost Estimating Policy

Section Summary

Transit policy and CSC practices do not ensure that replacement parts are acquired at the lowest price. The decision about whether to rebuild or buy a part is called the "make vs. buy" decision. Transit has a policy to guide this decision, but it is insufficient, and CSC is not adhering to some aspects. As a result, CSC's analysis comparing the cost of the three options for replacing parts does not provide quality information for decision-making, which could result in spending more on parts than is necessary.

Transit lacks assurance that it is making the best decisions about what to rebuild and buy

Transit's Rebuild Cost Estimating policy does not ensure that CSC is rebuilding and buying the most cost-effective parts. A 2014 peer review by the American Public Transportation Association raised concerns about how make vs. buy decisions are made at the CSC, and suggested that its resources could be better utilized. The make vs. buy policy is important because it helps enforce management directives and achieve the agency's objectives. Because of several weaknesses in the policy (detailed below), it does not help management achieve its goals or ensure that Transit's objectives are being met. As a result, there is no assurance that the agency is rebuilding parts that are more expensive to buy elsewhere, or buying parts that it could produce cheaper internally. Weaknesses in Transit's current make vs. buy policy include:

- *Lack of guidance on which parts are subject to the review.* The policy does not specify which parts should be subject to the rebuild cost comparisons. Instead, CSC told us that decisions about when to use the policy are made on a case-by-case basis and only for parts where a decision to rebuild has already been made. Through a review of six transit agencies, we found a promising practice where the transit agency focuses its make vs. buy decisions on high-value and high-volume parts (see Appendix I). In contrast, Transit's Rebuild Cost Estimating policy appears to be a paperwork exercise documenting a decision that has already been made.
- *Missing an opportunity to compare CSC rebuilds with external rebuilds.* The policy does not specifically require a comparison of the cost of an internally-rebuilt part with the cost of an externally-rebuilt part. Only 8 percent of the 49 cost comparisons provided by Transit included a comparison to the price of an external rebuild. The remaining 92 percent compared the CSC rebuild to the price of a new part. This means that in nearly all cases, CSC is not using the most valid comparisons to make its determination about what to make or buy.

2. Rebuild Cost Estimating Policy

- *No requirement to consider life cycle differences between new and rebuilt parts.* The policy does not require, and CSC cost estimates do not consider, the expected life of a rebuilt part versus a new part. In some cases, a new part may last longer than the rebuild, and in others, a rebuild will last longer than a new part. A part that is cheaper to rebuild, but does not last as long as a new part, may be more costly in the long run. Additionally, CSC rebuild cost estimates do not consider the value of a warranty that might be provided when buying a new part, or when using certain parts in rebuilds. Comparing only the initial cost of a rebuild to other alternatives, without consideration of the life of the rebuilt or purchased part, or the value of a warranty, can result in decisions that are not cost effective.
- *Lack of documentation requirements.* The policy does not specify what, if any, documents should be kept for make vs. buy decisions, and the amount of information to include in the documents. As discussed in a later section, CSC has no documentation of having completed a Rebuild Cost Estimate form for most parts it is rebuilding. Further, the amount of documentation included in the Rebuild Cost Estimate forms varies. Some forms include documentation of the price of new parts, and some do not. Without documentation standards, CSC cannot effectively enforce compliance with the policy, and lacks the information necessary to thoughtfully and systematically review decisions about what it is making and buying.

The shortcomings in the policy create a situation in which CSC may be allocating resources to rebuilding the wrong parts, and/or not rebuilding parts that would result in greater savings.

Recommendation 1

Transit should address multiple deficiencies in the Rebuild Cost Estimating policy, including:

a. providing guidance on which parts should be subject to the review, and focusing on high-value or high-volume parts
b. ensuring that the cost of internal rebuilds is compared to both the price of new parts and the price of external rebuilds
c. assessing life cycle cost and warranty value in cost comparisons
d. establishing consistent documentation requirements for make vs. buy decisions, including cases where the decision is to buy new components.

2. Rebuild Cost Estimating Policy

Rebuild Cost Estimating policy not followed

CSC is not following the Rebuild Cost Estimating policy, and does not maintain records for many of the parts it rebuilds. Out of thousands of parts that could be potentially rebuilt, 307 parts were actually being rebuilt by CSC between January and November of 2015. However, CSC could only provide Rebuild Cost Estimate forms for 18 of those parts.[1] For the remaining 289 parts, there is no record showing that the required cost comparison was made. Thus, for most parts being rebuilt at CSC, there is no documentation that CSC conducted the cost comparison required by the Rebuild Cost Estimating policy.

The policy requires CSC to periodically re-evaluate parts that are being rebuilt to ensure it continues to be cost effective to rebuild the part internally. However, the policy does not specify who is required to do this evaluation, and CSC told us that it is not doing this. This means that there is no assurance that even if it was more cost effective to rebuild a part at the time the decision was made, it continues to be the most cost-effective alternative.

Between the flaws in the policy itself and CSC's lack of adherence to the policy, there is no assurance that Transit is acquiring replacement parts at the lowest price.

Recommendation 2

After improving the Rebuild Cost Estimating policy per Recommendation 1, Transit should take steps to ensure that the policy is followed by the Component Supply Center, including the collection and retention of records.

Rebuild savings estimates unreliable

Data illustrating how much money the CSC saves by rebuilding parts are not reliable. CSC attempts to track how much it saves by rebuilding parts instead of buying new ones. The quality of this information is important, because it can be used to monitor performance and make decisions about what should be rebuilt, and what should be purchased. Data provided by Transit suggest that CSC rebuilds saved between $500,000 and $1.5 million each month between January and August 2015. However, the savings estimates are not reliable (detailed below), and as such paint an inaccurate picture of what is being achieved by CSC.

CSC's savings estimates are unreliable because:

- *Overhead rates are inaccurate.* The overhead rate used in this calculation is too low. CSC savings estimates use an overhead rate

[1] CSC provided 49 Rebuild Cost Estimate forms to the audit team, and indicated that was all of the forms it has on record. Of these 49 forms, only 18 applied to parts that were actually being rebuilt by CSC between January and November of 2015.

for labor that is insufficient to cover employee fringe benefits, let alone other types of overhead such as supervision costs.[2] Also, the overhead rate used for these estimates is substantially lower than the overhead rate used in the cost comparisons required by the Rebuild Cost Estimating policy. This means that cost of rebuilds shown in the savings estimate is much lower than what it actually is.

- *Savings calculations are missing a comparable price.* The savings estimates do not compare the cost of internally-rebuilt parts to externally-rebuilt parts, only to the price of new parts. Without a valid comparison, the estimated savings can only be calculated with limited certainty.
- *Missing some rebuilt work.* Not all rebuilt parts are included in the savings estimates. Including all rebuilt parts would provide a more accurate picture of total savings; leaving them out means that the estimate is lacking critical information that could be used to manage rebuild activities.

Recommendation 3

Transit should improve the collection and reporting of rebuild savings data by:

a. developing and applying consistent overhead rates to both the rebuild cost estimates and to the price of rebuilt parts carried in inventory. At a minimum, the overhead rate should be sufficient to recover the full cost of labor used for rebuilding parts.
b. including the cost of externally-rebuilt parts in the analysis.
c. including all rebuilt parts in the analysis.

[2] The overhead rate used in savings estimates is also used in Transit's M5 inventory system.

3. Component Supply Center Business Planning

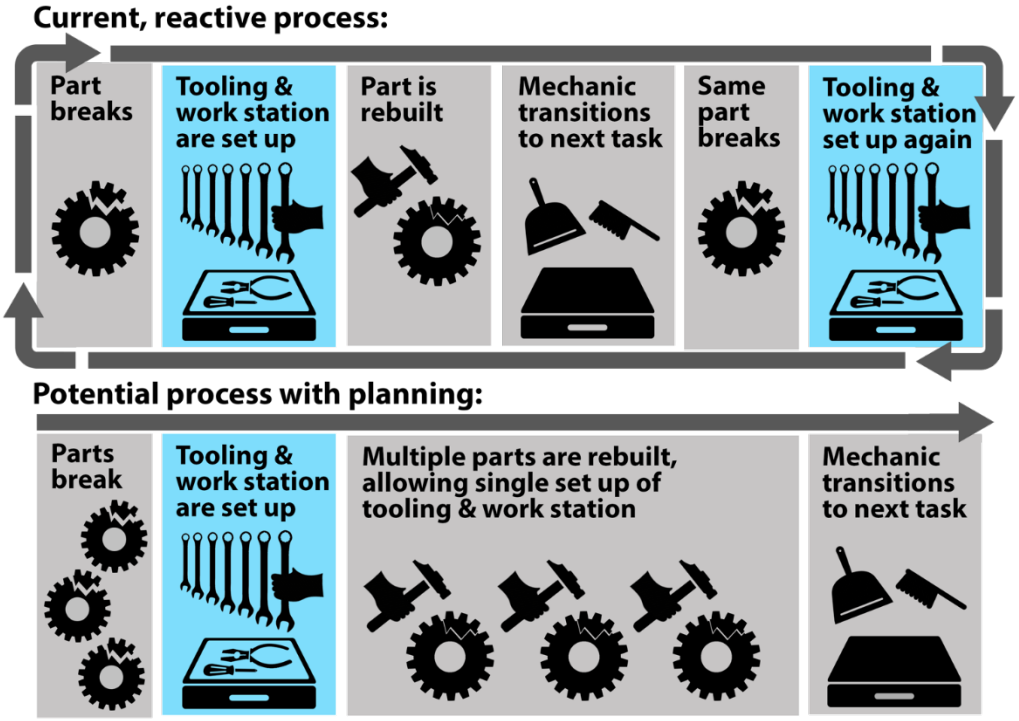
Section Summary

Transit lacks a plan for the future of CSC. CSC resources are allocated based on the priority of the day, rather than a plan for how to most cost effectively allocate those resources over the medium to long term. Upcoming transitions in the vehicle maintenance workforce create an opportunity to reallocate the future workforce with priorities identified through business planning.

Transit lacks assurances that CSC work is efficient or effective

Transit does not have adequate plans to effectively allocate work and ensure efficiencies at CSC. Transit staff told us that CSC activities are frequently reactive rather than proactive. While CSC tries to plan rebuild work in advance, some staff are typically reallocated based on the problem at the time. As a consequence, Transit lacks assurances that CSC's larger objectives—like keeping buses on the road—are being achieved in the most efficient or effective way possible. Transit staff told us that the lack of planning at CSC results in inefficiencies that could be eliminated with planning, illustrated in Exhibit B below.

Exhibit B: Planning can eliminate duplicative tasks.



Source: King County Auditor's Office

3. Component Supply Center Business Planning

Transit is not sufficiently addressing the risks associated with a changing CSC workforce. Based on age and tenure, King County predicts that 20 percent of Transit's Vehicle Maintenance employees will retire by 2021. When these workers leave, they will take decades of accumulated organizational and practical knowledge with them, likely resulting in the loss of key information about bus maintenance practices.

On the other hand, Transit's future bus and trolley fleet may require specializations that do not exist today. While CSC makes efforts to cross-train employees, Transit typically fills positions as they become open without conducting an assessment of future need. However, in order to best position itself for the future, Transit will need to understand what positions need to be rehired, which positions need to be reclassified, and which do not. Currently, rebuild activities are about 42 percent of all the work done at CSC. An assessment should consider the work being done within the rebuild function, and throughout CSC.

Transit lacks a plan for CSC. Transit lacks a plan for how to make the most effective use of CSC. Building upon the information generated from the implementation of the previous recommendations of this report, a plan could help CSC to efficiently allocate resources, establish budget priorities, redirect staffing levels, and create more effective workflows.

Recommendation 4

Transit should develop and implement a plan for Component Supply Center. Among other plan elements, the plan should take into account:

a. an analysis of which rebuild activities add the most value
b. current and projected workload trends for both rebuilds and other services
c. trends in the future workforce.

This planning effort should take place such that implementation of the plan can begin in 2018.

4. Collective Bargaining Agreement

Section Summary

Opportunities exist for Transit to work with the union to improve CSC outcomes. Transit has labor arrangements that limit Transit's flexibility to shift resources to the areas in which CSC adds the most value. Union representatives we spoke with indicated a willingness to address these issues. By working with the union, Transit could help ensure that CSC resources are being used in the most cost-effective manner.

Labor agreements influence the make vs. buy decision

The collective bargaining agreement limits the components that CSC can buy and may lead to inefficiencies. A key provision in the collective bargaining agreement restricts Transit's options for obtaining bus parts, and limits Transit's ability to reallocate resources to activities where CSC adds the most value. In its 2013-2016 contract with Amalgamated Transit Union (ATU) Local 587, a section on subcontracting prohibits Transit from contracting out work historically performed by employees.[3] In practice, this can mean that if a component was ever manufactured in the CSC, Transit cannot buy new or rebuilt versions, even if it is more cost effective to do so.

Union officials expressed a willingness to consider shifting CSC resources. Representatives of ATU Local 587 we spoke to indicated a willingness to consider reallocating CSC resources to more cost-effective activities provided that the reallocation does not result in a reduction of work. This suggests that there is an opportunity for Transit to work with labor in a cooperative manner to improve the value provide by CSC.

Recommendation 5

Using information generated by implementing the improvements to the Rebuild Cost Estimating policy as discussed in Recommendations 1-3, Transit should work with organized labor to shift resources to rebuilding those parts or components that are most cost effective to rebuild internally.

Recommendation 6

Transit should work with the union to incorporate changes in the next collective bargaining agreement to address instances where limits on buying new or rebuilt parts impact the efficient use of Component Supply Center resources.

Conclusion

While CSC can demonstrate examples of how its expertise results in substantial cost savings, data reliability issues, the shortcomings in King County Transit's Rebuild Cost Estimating policy, and CSC's lack of

[3] "METRO shall not contract out work historically performed by Employees if the contracting of such work eliminates or reduces the normal workload of the UNION."

adherence to the policy, raise questions about whether CSC is rebuilding parts that would be less costly to procure elsewhere, or buying new parts that would be less costly to rebuild. This is of particular concern with respect to the potential to buy externally-rebuilt parts, because little effort is made to compare the cost of internal rebuilds to external rebuilds. CSC's full potential is not being realized because of certain labor provisions and a lack of planning. With labor negotiations taking place in 2016 and a significant shift in its workforce over the next five years, Transit has a unique opportunity to plan, collaborate, and resolve issues with inefficiencies. Doing so in a thoughtful way can ensure that CSC is better prepared for future needs, and that its activities generate the most value to the county.

Appendix 1

Examples of CSC Innovation in Rebuilt Parts

Hybrid Drives

The Component Supply Center (CSC) identified a variety of problems leading to the premature failure of these units, and worked with the manufacturer to develop solutions aimed at reducing the number of failures. In one instance, CSC's diagnosis of the problem convinced the manufacturer to change the materials used in a part, and according to CSC, the manufacturer provided $1.25 million worth of free replacement drives to King County Transit, despite the drives being out of warranty. In another instance, CSC diagnosed how excessive torque from the electric motor was causing drive shafts to break, and developed a software solution to this issue.

Exhibit C: Hybrid drive unit being rebuilt at CSC (L) and snapped drive shaft (R).

Source: King County Auditor's Office

Battery Packs

CSC staff found innovative ways to source replacement battery modules (arrays of individual battery cells) contained in the large battery packs (shown below). According to CSC, Transit cannot buy the battery modules directly from the manufacturer. Instead, it found other sources for the modules, including buying Toyota Prius batteries and buying battery components from other transit agencies. This allows CSC to rebuild the battery packs for thousands of dollars less than buying new battery packs.

Exhibit D: Hybrid battery pack being rebuilt at CSC.

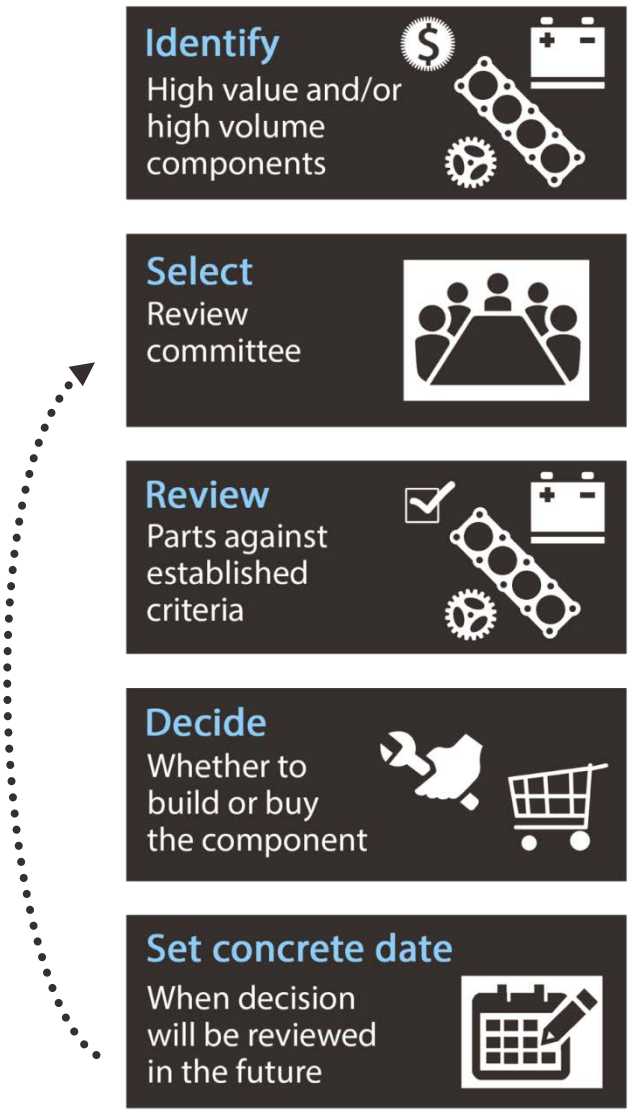
Source: King County Auditor's Office.

Appendix 2

Promising Practices from Peer Review

In a survey of six peer agencies,[4] we found only one other agency that, like Transit, has a make vs. buy policy. The other agency that has such a policy, TransLink in Vancouver, BC, has several procedures in place to ensure that quality information is used in make vs. buy decision-making. Unlike King County, Vancouver establishes a priority set of parts to review, develops criteria and a panel for consistently reviewing those parts, and designates a future date when the decision should be reviewed. Vancouver's key practices are illustrated in the table below.

Exhibit E: Key steps in TransLink's make vs. buy decision-making process.



Source: King County Auditor's Office

[4] The six peer agencies that responded to our survey were: Boston, Mass., Philadelphia, Pa., San Francisco, Calif., Vancouver, B.C., Victoria, B.C., and Washington, D.C.

Appendix 3

Suggested Sequencing for Implementation of Recommendations

Fix the rebuild cost estimating policy and related data, and use it to make decisions.	**Recommendation 1** Address multiple deficiencies in the Rebuild Cost Estimating policy, including: a. providing guidance on which parts should be subject to the review, and focusing on high-value or high-volume parts b. ensuring that the cost of internal rebuilds is compared to both the price of new parts and the price of external rebuilds c. assessing life cycle cost and warranty value in cost comparisons d. establishing consistent documentation requirements for make vs. buy decisions, including cases where the decision is to buy new components. **Recommendation 2** Transit should take steps to ensure that the policy is followed by the Component Supply Center, including the collection and retention of records. **Recommendation 3** Improve the collection and reporting of rebuild savings data by: a. developing and applying consistent overhead rates to both the rebuild cost estimates and to the price of rebuilt parts carried in inventory. At a minimum, the overhead rate should be sufficient to recover the full cost of labor used for rebuilding parts. b. including the cost of externally-rebuilt parts in the analysis. c. including all rebuilt parts in the analysis.
Use information from utilizing the new policy to develop a plan for CSC activities.	**Recommendation 4** Transit should develop and implement a plan for Component Supply Center. Among other plan elements, the plan should take into account: a. an analysis of which rebuild activities add the most value b. current and projected workload trends for both rebuilds and other services c. trends in the future workforce. This planning effort should take place such that implementation of the plan can begin in 2018. **Recommendation 5** Using information generated by implementing the improvements to the Rebuild Cost Estimating policy as discussed in Recommendations 1-3, Transit should work with organized labor to shift resources to rebuilding those parts or components that are most cost effective to rebuild internally.
Use information from utilizing the new policy to inform work with the union.	**Recommendation 6** Transit should work with the union to incorporate changes in the next collective bargaining agreement to address instances where limits on buying new or rebuilt parts impact the efficient use of Component Supply Center resources.

Executive Response

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April 15, 2016

Kymber Waltmunson
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Room 1033
COURTHOUSE

Dear Ms. Waltmunson:

Thank you for the opportunity to review and comment on the proposed final report on Bus Part Rebuilds: More Planning Needed to Ensure Effectiveness.

Being a Best Run Government is one of my top priorities and opportunities to review and discuss areas such as Metro Transit's Component Supply Shop allow us to highlight some of the many success stories here at King County. Part of being a Best Run Government is recognizing where improvements can be made and taking action to implement those improvements. The audit work done by your office has identified many such opportunities.

As noted in the report, the rebuild process is one that can save money when the cost to rebuild the part is less than the cost of a brand new part purchased externally. As noted, the staff at Component Supply are very resourceful and have a long history of rebuilding parts. Along with this industriousness comes the need to ensure that resources are used efficiently and that the decision as to which parts will be rebuilt is one that is based on a solid foundation of data and analysis.

I concur with the six recommendations identified in the audit. Implementing these recommendations will strengthen our process and ensure that we have proven the savings from the rebuild function. The recommendations include two that involve working with our labor partners and we welcome the opportunity for collaboration. The current Amalgamated Transit Union contract expires this fall. In order to implement the recommendations in the sequence recommended in the audit, it may be necessary to address these areas in subsequent labor negotiations.

My thanks to you and your staff for the collaborative approach brought to this review. Implementing these recommendations will demonstrate to the public that we are good financial stewards of the resources they provide. The sequencing of recommendations suggested in the audit has been particularly helpful in identifying the timeline for implementation.

If you have any questions regarding our audit response, please contact Rob Gannon, Interim General Manager, Metro Transit, at 206-477-5911.

Sincerely,

Dow Constantine
King County Executive

Enclosure

cc: Fred Jarrett, Deputy County Executive, King County Executive Office (KCEO)
Rhonda Berry, Deputy Executive of Operations, KCEO
Harold Taniguchi, Director, King County Department of Transportation (DOT)
Rob Gannon, Interim General Manager, Metro Transit, DOT
William Greene, Chief Financial Officer, DOT
John Alley, Interim Manager, Vehicle Maintenance, Metro Transit, DOT
Jill Krecklow, Finance Manager – Enterprise Operations, Metro Transit DOT

Executive Response (continued)

Recommendation No. 1

Transit should address multiple deficiencies in the Rebuild Cost Estimating policy, including:

a. providing guidance on which parts should be subject to the review, and focusing on high-value or high-volume parts
b. ensuring that the cost of internal rebuilds is compared to both the price of new parts and the price of external rebuilds
c. assessing life cycle cost and warranty value in cost comparisons
d. establishing consistent documentation requirements for make vs. buy decisions, including cases where the decision is to buy new components.

Select concurrence below	Implementation date or N/A	Responsible agency
Concur (explanation optional)	**DRAFT - 09-01-2016; final by 09-01-2017**	**Transit**
Agency concurrence comment, or reason for partial or non-concurrence for Recommendation 1		
Vehicle Maintenance has initiated the revision of Policy FES 10-9 to align with the focus on high-value or high-volume parts; compaing prices to new/external rebuild options; assessing the life cycle costs compaisons for all options; and establishing a consistent and documented decision. The draft will be available for discussion in the negotiations in 2016 but it is anticipated that formal adoption by the union won't occur until a subsequent contract cycle. Updating the policy is the first part of the effort, implementing recommendations 2 and 3 will impact the results of applying the policy and some experience is needed to inform decision-making. .		

Recommendation No. 2

After improving the Rebuild Cost Estimating policy per Recommendation 1, Transit should take steps to ensure that the policy is followed by the Component Supply Center (CSC), including the collection and retention of records.

Select concurrence below	Implementation date or N/A	Responsible agency
Concur (explanation optional)	**Semi-annual starting 12/30/2017**	**Transit**
Agency concurrence comment, or reason for partial or non-concurrence for Recommendation 2		
A process that audits the use of the policy will be developed and implemented by Transit staff during off-years of the biennial budgeting process. The process for review will be outlined in the policy and results will be reported.		

Recommendation No. 3

Transit should improve the collection and reporting of rebuild savings data by:

a. developing and applying consistent overhead rates to both the rebuild cost estimates and to the price of rebuilt parts carried in inventory. At a minimum, the overhead rate should be sufficient to recover the full cost of labor used for rebuilding parts.
b. including the cost of externally-rebuilt parts in the analysis.
c. including all rebuilt parts in the analysis.

Select concurrence below	Implementation date or N/A	Responsible agency
Concur (explanation optional)	**06-01-2017**	**Transit**
Agency concurrence comment, or reason for partial or non-concurrence for Recommendation 3		
The policy adopted by Transit will address the topics of overhead rate application, external versus internally rebuilt parts and will include all rebuild activity in the analysis. Such savings will be reviewed biennially in the budget cycle. The 2017/2018 budget will be used to develop the elements of this recommendation such as overhead rates.		

Recommendation No. 4

Transit should develop and implement a plan for Component Supply Center (CSC). Among other plan elements, the plan should take into account:

a. an analysis of which rebuild activities add the most value.
b. current and projected workload trends for both rebuilds and other services.
c. trends in the future workforce.

This planning effort should take place such that implementation of the plan can begin in 2018.

Select concurrence below	Implementation date or N/A	Responsible agency
Concur (explanation optional)	**10-01-2017**	**Transit**
Agency concurrence comment, or reason for partial or non-concurrence for Recommendation 4		
In accordance with the new Policy, this process will be developed to support pilot testing in 2018 leading to formal budget and resource updates as part of the 2019/2020 biennial budget. Using the off year of the biennial budget cycle will allow a focused effort that can be informed by the results of the revised policy and implementation.		

Executive Response (continued)

Recommendation No. 5
Using information generated by implementing the improvements to the Rebuild Cost Estimating policy as discussed in Recommendations 1-3, Transit should work with organized labor to shift resources to rebuilding those parts or components that are most cost-effective to rebuild internally.

Select concurrence below	Implementation date or N/A	Responsible agency
Concur (explanation optional)	**TBD on or before the NEXT round of contract negotiations**	**Transit**
Agency concurrence comment, or reason for partial or non-concurrence for Recommendation 4		
The current ATU contract expires 10/31/2016. This does not provide sufficient time to update the policy and use it in decision-making in order to have results to share with the union. As a result, we will look to formally revise the ATU agreement with the next round of negotiations. We will involve union representatives in the development of the revised policy and share information such as overhead rates as we go forward. In the event that agreement can be reached prior to the onset of future negotiations, we would have the option of moving forward with an MOU.		

Recommendation No. 6
Transit should work with the union to incorporate changes in the next collective bargaining agreement to address instances where limits on buying new or rebuilt parts impact the efficient use of Component Supply Center resources.

Select concurrence below	Implementation date or N/A	Responsible agency
Concur (explanation optional)	**TBD on or before the NEXT round of contract negotiations.**	**Transit**
Agency concurrence comment, or reason for partial or non-concurrence for Recommendation 4		
The current ATU contract expires 10/31/2016. This does not provide sufficient time to update the policy and use it in decision-making in order to have results to share with the union. It also does not provide sufficient time to develop and incorporate the response to recommendation #4. As a result, we will look to formally revise the ATU agreement with the next round of negotiations. We will involve union representatives in the development of the revised policy and share information such as overhead rates as we go forward. In the event that agreement can be reached prior to the onset of future negotiations, we would have the option of moving forward with an MOU.		

Statement of Compliance, Scope, Objective & Methodology

Statement of Compliance with Government Auditing Standards

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.

Scope of Work on Internal Controls

We assessed internal controls relevant to the audit objectives. This included review of selected policies, processes, data, and reports.

Scope

This audit focuses on Transit's methods for making decisions on whether to purchase new, purchase rebuilds, or build components in-house.

Objectives

To review the processes and procedures Transit uses when making the decision to buy or rebuild components, and to identify issues that may impede efficient outcomes.

Methodology

The Auditor's Office utilized a multi-methodological approach to complete this audit. Key activities that informed our findings include:

- Review of Component Supply Center (CSC) make vs buy policies, forms, and documentation
- Review of make vs. buy policies and practices at six peer agencies
- Review of Vehicle Maintenance human resource projections
- Analysis of Transit's parts inventory database
- CSC site visit and interviews with CSC managers and staff
- Interviews with representatives of Amalgamated Transit Union Local 587
- Interviews with vehicle maintenance managers of six peer agencies

List of Recommendations & Implementation Schedule

Recommendation 1: Transit should address multiple deficiencies in the Rebuild Cost Estimating policy, including:

a. providing guidance on which parts should be subject to the review, and focusing on high-value or high-volume parts
b. ensuring that the cost of internal rebuilds is compared to both the price of new parts and the price of external rebuilds
c. assessing life cycle cost and warranty value in cost comparisons
d. establishing consistent documentation requirements for make vs. buy decisions, including cases where the decision is to buy new components.

Implementation Date: Draft by 09/01/2016; Final by 09/01/2017
Estimate of Impact: Addressing deficiencies in the Rebuild Cost Estimating policy will help Transit make better decisions about what parts to buy, and what parts to rebuild in the CSC. By focusing on high-value or high-volume parts, Transit will be able to make decisions on issues with the potential to have the greatest financial impact. Having consistent documentation requirements will allow Transit to compare its estimate costs with actual expenditures.

Recommendation 2: After improving the Rebuild Cost Estimating policy per Recommendation 1, Transit should take steps to ensure that the policy is followed by the Component Supply Center, including the collection and retention of records.

Implementation Date: Semi-annual starting 12/30/2017
Estimate of Impact: Transit will only realize the benefits of an improved policy if it can ensure that the policy is implemented. Establishing requirements for the collection and retention of records is one way that Transit can ensure compliance with the policy. In addition, the documentation can be used to reassess decisions to make or buy parts.

Recommendation 3: Transit should improve the collection and reporting of rebuild savings data by:

a. developing and applying consistent overhead rates to both the rebuild cost estimates and to the price of rebuilt parts carried in inventory. At a minimum, the overhead rate should be sufficient to recover the full cost of labor used for rebuilding parts.
b. including the cost of externally-rebuilt parts in the analysis.
c. including all rebuilt parts in the analysis.

Implementation Date: 6/1/2017
Estimate of Impact: By addressing the reliability of rebuild savings data, Transit will have information to assess the performance of the CSC. Based on this information, Transit can establish a baseline to assess the impact of changes, and make more informed decisions about what to invest in.

List of Recommendations & Implementation Schedule (continued)

Recommendation 4: Transit should develop and implement a plan for Component Supply Center. Among other plan elements, the plan should take into account:

a. an analysis of which rebuild activities add the most value
b. current and projected workload trends for both rebuilds and other services
c. trends in the future workforce.

This planning effort should take place such that implementation of the plan can begin in 2018.

Implementation Date: 10/1/2017
Estimate of Impact: By developing and implementing a plan, Transit will have the framework necessary to ensure that the CSC rebuild work is efficient and effective. The plan will help Transit to establish budget priorities, direct staffing levels, and create more effective workflows.

Recommendation 5: Using information generated by implementing the improvements to the Rebuild Cost Estimating policy as discussed in Recommendations 1-3, Transit should work with organized labor to shift resources to rebuilding those parts or components that are most cost-effective to rebuild internally.

Implementation Date: TBD on or before the NEXT round of contract negotiations
Estimate of Impact: Shifting resources to more cost-effective work should result in higher cost savings. The extent of impact can be measured once Transit has improved the reliability of cost savings data and established a performance baseline.

Recommendation 6: Transit should work with the union to incorporate changes in the next collective bargaining agreement to address instances where limits on buying new or rebuilt parts impact the efficient use of Component Supply Center resources.

Implementation Date: TBD on or before the NEXT round of contract negotiations
Estimate of Impact: Shifting resources to more cost-effective work may be improved by changes to the collective bargaining agreement. Addressing issues should result in higher cost savings. The extent of impact can be measured once Transit has improved the reliability of cost savings data and established a performance baseline.