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JULY 2014


# THE COMPARATIVE EXPENSE OF THE PROPOSED NEW TERMINAL PLAN FOR KANSAS CITY INTERNATIONAL AIRPORT

*By Joseph Miller*

## Executive Summary


The purpose of this essay is to analyze the cost of a proposed new terminal plan at Kansas City International Airport (MCI or KCI) versus a possible major renovation of the existing terminals. The new terminal plan that the Kansas City Aviation Department (KCAD) has proposed envisions a new single terminal that will replace the current three-terminal design, with supporting improvements to the roadways, parking lot, and airfield. The focus here is limited to a discussion of the costs of this proposal and the costs of existing terminal repairs, as defined in statements from KCAD officials and publicly released documents.

We examine only publicly available information and planning documents on the new terminal plan, and any alternative options that have been released. We do not propose evaluating any novel terminal or repair plan, nor do we attempt to generate an original analysis of the wider economic impact of the proposed plan or possible alternatives.


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Based on a net present value analysis of the new terminal plan relative to a proposed terminal repair option, we find that the new terminal plan is more costly compared to repair options under most circumstances. More important, based on our examination of the available evidence, it is quite possible that the currently projected cost of the airport project will far exceed potential new sources of revenue that a centralized terminal, as planned, could provide. Therefore, our analysis would suggest that Kansas City should select a more modest terminal repair plan over the proposed new terminal plan.

The essay is structured in three parts. First, we outline the costs of the new terminal plan as defined by the Kansas City Aviation Department's planning documents. Second, the paper addresses the existing options for the replacement or repair of Kansas City International Airport's current terminal design, again using only options that Aviation Department officials have suggested. The third section uses comparative net present value analysis to compare the relative expense of a new terminal plan versus repair options using different assumptions.

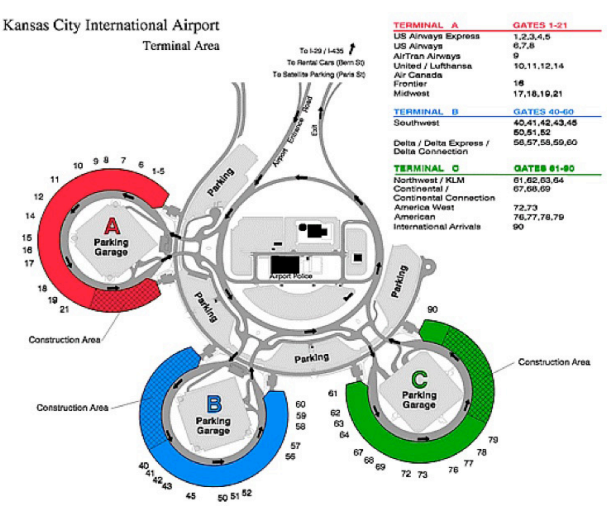
## Introduction

Kansas City International Airport has three terminals, A, B, and C, which contain a total of 66 available gates.[1] At any given time, only 30 gates are needed to accommodate MCI's 4.9 million annual departing passengers. Terminal B, where MCI's largest carrier, Southwest Airlines, has its gates, is the busiest of the three terminals.[2] A layout of the existing terminals is shown in Figure 1.

Today's security demands were unforeseen when MCI was dedicated in 1972. The terminal area behind security checkpoints is, therefore, limited and disconnected, offering passengers truncated concession and amenity opportunities after they pass security screening. The three-terminal plan creates disconnected secure areas that require many security checkpoints.[4]

The decentralized design of the terminals and their significant excess of gates is the result of the original design goals of the airport. In 1972, MCI was a major TWA hub and, therefore, in need of a large number of gates. In addition, MCI's terminals were designed, at behest of TWA, in the "drive to your gate"

**Figure 1**



model. This terminal structure was meant to minimize the distance passengers would travel from their car to their gate.[5] TWA subsequently opted to move its hub from MCI to Lambert-St. Louis International Airport, which greatly reduced MCI's terminal capacity needs. Furthermore, the need for more security in the aviation industry has meant that MCI's design is considered outmoded due to its lack of post-security check space. In the years since the airport opened, the Kansas City Aviation Department has made incremental repairs to the terminals, as well as a major renovation from 2001 to 2004 that cost $258 million.[6]

Officials for the KCAD claim that the current terminal structure has outlived its useful life, and that new requirements for environmental protection, security, and aircraft operations make its continued use uneconomical.[7] To replace the three-terminal design, the Aviation Department has proposed a new, single terminal where Terminal A now stands. A proposed design is shown in Figure 2. Initially, the proposed new terminal will have 37 gates and a single, connected, secure area with room for more concessions and amenities. In addition to the new terminal, the Aviation Department's plans envision significant upgrades to MCI's airfield (including new de-icing pads), a new parking structure, and a modified road system to serve the new terminal.[8]

Officials with the Aviation Department claim that the new terminal will have many benefits for passengers using MCI. In addition, the new airport would create a pleasing "front door" for Kansas City, boosting economic development. The new airport terminal also is more environmentally friendly, according to officials.[10]

While each of these are laudable goals and worthy of study, here we focus on the Aviation Department officials' assertion that building a new terminal will cost less than making incremental repairs to the existing structure. Central to this claim is the assumption that the reduction in security costs and maintenance costs together with new revenue from food and retail sales mean that building a new terminal will be more cost-effective than undertaking incremental repairs to the existing terminals.[11]

***More important, based on our examination of the available evidence, it is quite possible that the currently projected cost of the airport project will far exceed potential new sources of revenue that a centralized terminal, as planned, could provide.***

**Figure 2**

9

*In the years since the airport opened, the Kansas City Aviation Department has made incremental repairs to the terminals, as well as a major renovation from 2001 to 2004 that cost $258 million*

We use comparative net present value analysis to ask the question: Properly measured, is the cost of building a new terminal less than maintaining the existing terminals?

# Part I: New Terminal Cost Estimates, New Revenue, Cost Reductions

## Cost Of New Terminal Plan

The Aviation Department's Advance Terminal Planning Study puts the expected cost at $1.223 billion. The Planning Study's estimate includes construction, core terminal requirements, a necessary new parking structure, repairs to the airfield, and a modest construction overrun cushion.[12] The breakdown by area is as follows:

- Terminal: $680,740,835
- Landside improvements (new access roads, parking garages, etc.): $319,761,975
- Civil Airside improvements (new aprons, taxiways, resurfacing, new centralized de-icing pads): $203,235,630
- Central Utility Plant (CUP) Modifications: 19,609,043[13]

This is a baseline estimate that includes a 15 percent construction contingency.

There is some discrepancy over this cost estimate. According to the *Kansas City Business Journal*, the actual cost of the new terminal could range somewhere between $960 million and $1.35 billion. Officials for the Aviation Department have stated more recently that it does not expect costs to go above $1.2 billion, and they believe the costs can be driven down to approximately $900 million.[14] It is difficult, however, to see how the Aviation Department could drive down the cost to $900 million. That would require a savings of $323 million, more than the costs of all the proposed repairs and improvements to the airport's runways.[15] Other than cutting out a large, integral (and as yet unspecified) part of the new terminal project, it seems unlikely the current plan could reduce costs to $900 million.

Another area that could have important effects on the cost of the new terminal plan is its construction timeline. According to the Aviation Department's planning documents, construction on the new terminal will begin in 2015. Groundbreaking to opening day is slightly more than three years: the new terminal is projected to open in February of 2019.[16]

We assume that the new terminal plan's total capital cost and construction time frame will be as stated in the planning document. That is to say, the upfront capital cost will be $1.223 billion and construction will take place from 2015 to 2019.

## New Revenue

All assumptions on possible new sources of revenue seek reasonable estimations of how MCI might

expect its terminal to perform given the activity at other new terminals nationwide and as reported by the Federal Aviation Administration (FAA) and the KCAD.

The new terminal plan envisions greatly increased concessions space beyond a centralized security checkpoint. According to initial estimates, MCI's secure concessions space will increase from the current 23,879 square feet to 83,700 square feet with the new terminal. This increased concessions space could allow for more food service and more retail sales.[17] These are new sources of revenue that are only available with the implementation of the new terminal plan.

Concessions at airports are usually defined as either food service or retail (T-shirts, suitcases, watches). MCI's concessions, both retail and food sales combined, generated $29 million in revenue in 2013. However, MCI only receives a portion of that revenue, which was less than $3 million in 2013.[18]

With a new terminal, we assume that MCI will increase its sales per passenger both in terms of food service and retail. In terms of food service, in 2010, MCI generated revenues of $3.71 per enplaned (or boarding) passenger. MCI's food sales per enplaned passenger could increase to a level similar to other peer airports with new terminals, or $4.67. In the area of retail sales, MCI is at $1.23 per enplaned passenger, far below peer airports. We assume sales will rise to $2.27 per passenger based on the performance of new terminals such as those at Austin (AUS) and Sacramento (SMF).[19]

New revenue to MCI from concessions is dependent on the effective rent that restaurants and shops pay to MCI. According to the new airport planning study, effective rent was 9.6 percent for food service and 14 percent for retail business.[20] We assume that, with a new terminal, MCI will be able to charge higher effective rents, 14 percent for food sales, and 16 percent for retail sales, as has been achieved at peer airports.

## Cost Savings

All assumptions on possible cost savings use reasonable estimations of how MCI might expect its terminal to perform, given the track record of other new terminals nationwide and as reported by the FAA and KCAD.

Officials with the Aviation Department claim that the new terminal plan will save MCI in terms of maintenance and the cost of law enforcement. With a new terminal, yearly costs for terminal maintenance should decrease and the combination of security checkpoints could make security less expensive, according to officials.

The current cost of law enforcement and terminal maintenance is about $12 million at MCI.[21] Reducing security lines and using a new, centralized facility may decrease costs, though arguably there is a limit to efficiency savings in this

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area. Security costs at MCI are $1.77 per boarding passenger, a cost that has fallen in recent years. That cost per passenger is about average compared to many peer airports with centralized security.[22] However, for the purposes here, we assume that these security costs can be cut in half to an initial 89 cents per passenger if the terminal opened in 2015 (but the terminal would actually open in 2019, at a systematically deflated security cost).

While maintenance costs *might* decrease at MCI with a new terminal, this is not a given. While a new terminal *may* require fewer regular repairs, a new terminal's increased holding area, services options, retail space, and technological amenities could increase maintenance costs per square foot. Compared to peer airports, MCI's current per square foot maintenance costs are average.[23] We assume that the new terminal's maintenance reduction cost will stem mainly from its reduction in total terminal area.

This paper also assumes that in any given year, the existing terminals would require $10 million more in capital improvements than a new terminal. This assumption is designed to boost the unforeseen capital improvements that might be necessary to maintain the existing terminals.

The final area where a new terminal might save costs is in the absence of any need for major renovations in the next three decades. This time span is chosen because it is a reasonable period before major repairs would likely be required for the new terminal plan.[24] For instance, MCI's current structure opened in 1972 and required major repairs from 2001 to 2004. This paper addresses the impact that subsequent major refurbishments for the existing terminals will have on the new terminal plan's relative expense.

## Part II: Costs To Repair The Existing Terminal Design

### Cost Of Repairing The Current Structure

Aviation Department officials stated in July of 2013 that the cost of repairing MCI's existing terminals would be approximately $600 million.[25] At a Sept. 10, 2013, presentation, Aviation Department officials presented a revised cost figure of between $645 million and $785 million.[26] The breakdown by area is:

- Terminal: $265 million-$320 million
- Landside improvements (new access roads, parking garages, etc.): $210 million-$260 million
- Civil Airside (new aprons, taxiways, resurfacing, new centralized de-icing pads): $150 million-$180 million
- Central Utility Plant (CUP) Modifications: $20 million-$25 million

Then, in February 2014, Aviation

Department officials stated that the bare bones repair could cost between $365 million to $460 million. These estimates could be reduced by one-third if one of the terminals is mothballed.[27] The breakdown by area is:

- Terminal: maximum $120 million
- Landside improvements (new access roads, parking garages, etc.): maximum $135 million
- Civil Airside (new aprons, taxiways, resurfacing, new centralized de-icing pads): maximum $180 million
- Central Utility Plant (CUP) Modifications: maximum $25 million

The next section compares the new terminal plan with three possible repair option capital costs. The first is the lower bound of the September 2013 estimates of $645 million. The second estimate is the maximum of the February 2014 estimates of $460 million. The third uses the 2014 estimates, assuming one terminal is mothballed, of $307 million.

The time frame in which these repairs must be completed is uncertain. The latest Capital Improvement Plan (CIP) report, however, did not mention major repairs, meaning that they might not occur until 2018.[28] However, these plans can change. According to Aviation Department officials, the repairs should be completed by 2020, making 2017 to 2019 a reasonable time frame for refurbishing the existing terminals.[29]

## Part III. The New Terminal Plan Vs. The Proposed Airport Refurbishment Plan: A Net Present Value Comparison

The expense of the new terminal plan can be compared with the expense of the existing terminal refurbishment plan using net present value (NPV) calculations. Net present value is the summation of a particular cash flow's present values, which factors in the time value of money. NPV estimates whether the financial return of a project is greater than the expected return of a similarly risky project. To perform a net present calculation, one needs to project the incoming and outgoing cash flow of a project, as well as the cost of capital.

Here we only compare the net present value of selecting the new terminal plan and the existing terminal refurbishment plan. Thus, the incoming cash flow of the new terminal project is defined as the new revenue that only the new terminal could generate and costs attributable to maintaining the existing terminals. Outgoing cash flow is the costs attributable to the new terminal plan that would be unnecessary if the project is not selected. If that comparative net present value is positive, the new

***MCI's concessions, both retail and food sales combined, generated $29 million in revenue in 2013. However, MCI only receives a portion of that revenue, which was less than $3 million in 2013.***

***While maintenance costs** might **decrease at MCI with a new terminal, this is not a given. While a new terminal** may **require fewer regular repairs, a new terminal's increased holding area, services options, retail space, and technological amenities could increase maintenance costs per square foot.***

terminal plan is less costly than the existing terminals refurbishment option, and should, therefore, be recommended as the viable alternative.

Performing this analysis requires finding the additional costs and revenues associated with each plan. For instance, the construction of the new terminal is a cost that would not occur if the existing terminals are refurbished. Given the lack of complete information on MCI's needs, the exact timeline of construction, and uncertainty as to future expenses and revenues, many assumptions must be made about the refurbishment plan and possible additional airport revenues. Based on the foregoing discussion, the most important assumptions used in this analysis are:

- The new terminal will cost $1.2 billion, and will be constructed from 2015 to 2019, as the Aviation Departments plans state.[30]
- The time frame of the analysis will be 30 years, after which time it is likely the new terminal plan would require major refurbishments.
- Construction of all refurbishment plans will last from 2017 to 2019.[31]
- We impose a $10 million extra cost in capital spending to act as an age penalty for maintaining the existing terminals.
- Upon the opening of the new terminal in 2019, MCI will perform as well as peer airports with new terminals in the areas of security, maintenance, concession sales, and retail sales.
- Parking revenue will not be used as part of the calculation. Improved parking is part of both plans, and there is no reason to assume that similar pricing policies will lead to revenue differences between the plans in these periods.
- The interest rate on general airport revenue bonds will be a 5 percent nominal rate, and the rate of inflation will remain at its 2013-14 level of 1.5 percent.[32] Therefore, the real rate of interest will be 3.5 percent.
- In support of the new terminal, officials with the Aviation Department project increased concession (restaurant and services) revenue, and decreased security and maintenance costs.[33] For the net present value calculation, it is assumed that for the new terminal plan, security costs will be halved, maintenance costs will decrease due to a reduction in the new airport's terminal square footage, and retail and concession sales will perform as well as peer airports with new terminals.

To find the net present value of the project, and based on the assumptions above, we will combine new airport concession and retail revenue, construction costs associated with maintaining the existing terminals, and security and maintenance cost reductions as positive cash flow. Construction costs associated with building and maintaining the new terminal plan will be subtracted from the cash flow and the total cash flow will be discounted by the real rate for interest for the time period of 2015-45.

This paper presents four models. The first model uses the September 2013 repair estimates, performed once over the course in the time period of analysis. The second model uses the February 2014 repair estimates, performed twice in the period on analysis. The third model uses the February 2014 repair estimates, assuming one of the terminals is mothballed. Model 4 shows under what conditions the new terminal plan would be the more affordable option. A full explanation of the calculations used in all following models can be found in Appendix I.

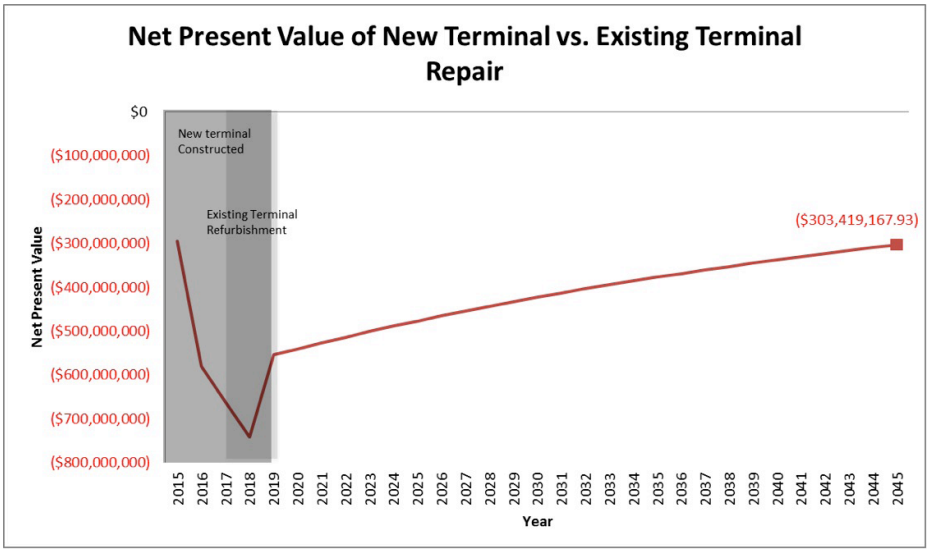
**Model 1**

New Terminal Cost: $1.223 billion

Terminal Repair: $645 million

Using a time frame of 2015 to 2045, this model assumes that the September 2013 repair estimates are correct and that the total repair costs will be $645 million. Given the assumptions, the comparative net present value of the new terminal plan over refurbishing the existing terminals would be a negative $303 million (-$303,419,167.93). To summarize the calculations, Figure 3 shows the net present value comparison of the two options.

**Figure 3 (Model 1)**




As shown in the figure, the comparative net present value of the new terminal plan decreases during the initial construction of the terminal from 2015 to 2019. However, the repairs on the existing terminals from 2017 to 2019 mitigate this decrease, and the net present value of the terminal rises when there are no construction costs for the new terminal in 2019, but there would have been repairs. After this point, the additional revenue and savings allow the comparative net present value of the new terminal plan to rise over time. However, at the end of 30 years, the new terminal plan's comparative NPV is still negative, meaning that to repair the

***With a new terminal, we assume that MCI will increase its sales per passenger both in terms of food service and retail.***

*Aviation Department officials stated in July of 2013 that the cost of repairing MCI's existing terminals would be approximately $600 million. At a Sept. 10, 2013, presentation, Aviation Department officials presented a revised cost figure of between $645 million and $785 million*

existing terminals is a comparatively less costly option.

**Model 2**

New Terminal Cost: $1.223 billion
Terminal Repair: $460 million, with an additional project in 2035

This model differs from model 1 by using the upper bound of the latest repair estimates that Aviation Department officials gave in February of 2014. Due to the reduced scope of this repair option, an equally priced repair is added starting in 2035. In this model, the net comparative net present value of the new terminal plan is negative $263 million (-$262,885,223.49). Figure 4 illustrates the net present value comparison of the two options.

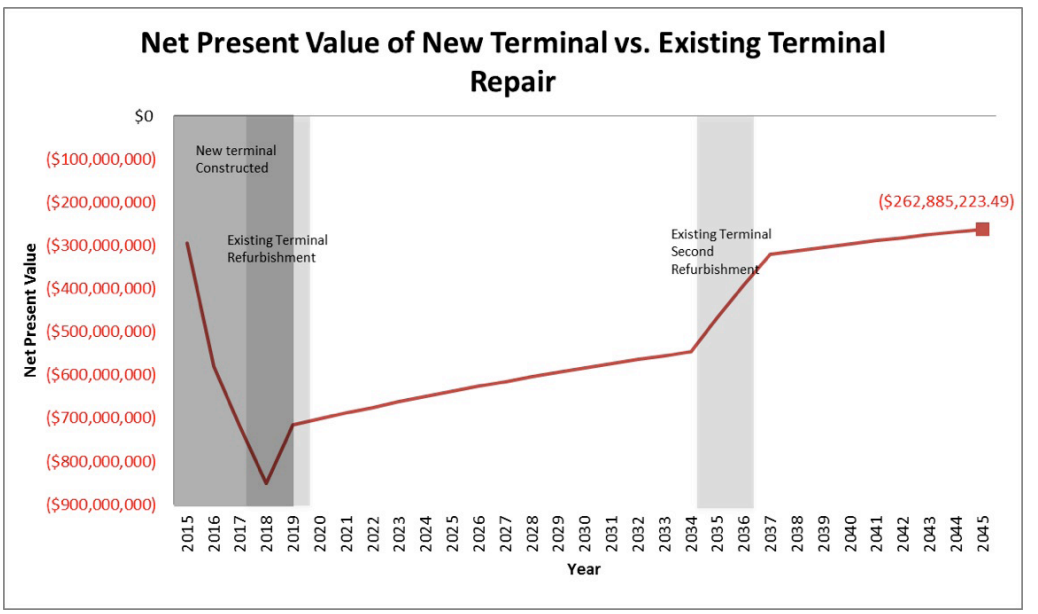
Once again, the new terminal plan is comparatively more expensive than the repair options, even assuming a second repair is required over the time frame of the analysis. This model demonstrates that, even if the highest of the newer repair estimates is realized, the new terminal plan is extremely costly in comparison to repairing the existing facilities.

**Model 3**

New Terminal Cost: $1.223 billion
Terminal Repair: $307 million, with an additional project in 2035

This model compares the new terminal plan against a repair option that mothballs one terminal, using the upper bound of the February 2014 repair estimates. This reduces the latest repair option by one-

**Figure 4 (Model 2)**



third, down to $307 million. Again, an additional major repair on the existing terminals was added in 2035. The results of this model show that the new terminal plan once again has a comparative net present value of negative $468 million (-$468,076,852.11). Figure 5 demonstrates the net present value comparison of the two options.

One of the unknowns in previous discussions of repairing the terminals was the cost to MCI if one of the terminals was mothballed. Model 3 uses Aviation Department estimations to show that if one of MCI's terminals was taken out of use, the new terminal would be notably more costly than maintaining the existing terminal structure.

**Model 4**

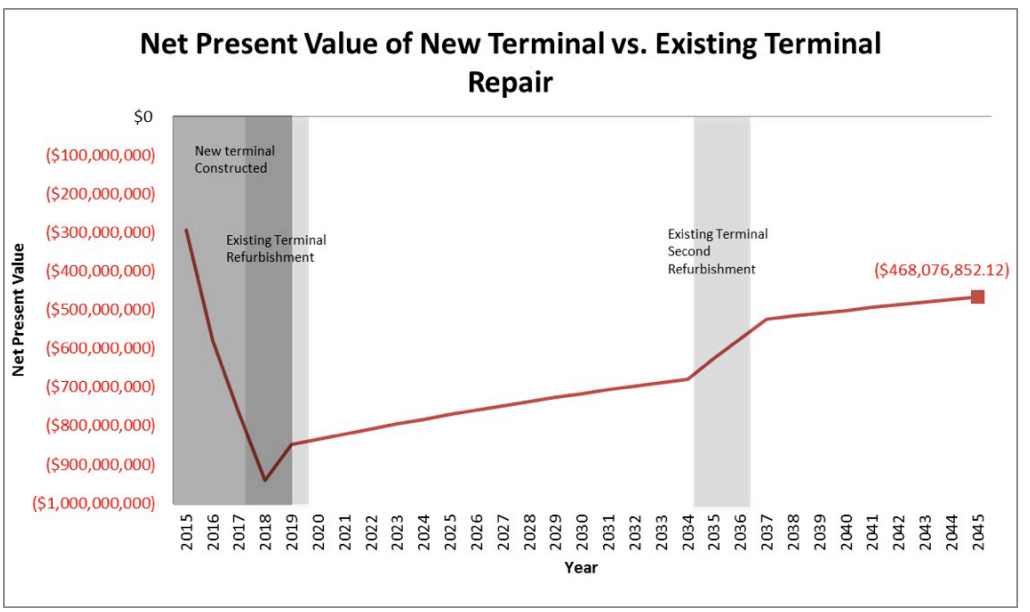
New Terminal Cost: $1.223 billion

Terminal Repair: $645 million, with an additional project in 2035, higher inflation rate, and additional repair in 2035.

This model, like model 1, uses KCAD's September 2013 estimates for repairing the whole existing terminal structure. However, this model also assumes that an additional repair would be required in 2035. In addition, this model assumes that inflation will increase to 3 percent from 2020 to 2045. Only under these types of conditions is the comparative net present value of the new terminal plan a strong positive. Using this model, the comparative NPV of

***Security costs at MCI are $1.77 per boarding passenger, a cost that has fallen in recent years. That cost per passenger is about average compared to many peer airports with centralized security***

**Figure 5 (Model 3)**



*Another source for the new terminal plan to break even is increasing passengers. Research shows that underlying market factors, and not terminal desirability, attract passengers and flights. However, if the new terminal resulted in a 1 percent per year increase in passengers over the base expectation of 1.9 percent growth rate, the terminal plan would break even. Furthermore, if under any plan, passenger growth accelerates to 9.8 percent (from an estimated 1.9 percent) per year, the new terminal plan would also break even.*

***… in February 2014, Aviation Department officials stated that the bare bones repair could cost between $365 million to $460 million. These estimates could be reduced by one-third if one of the terminals is mothballed.***

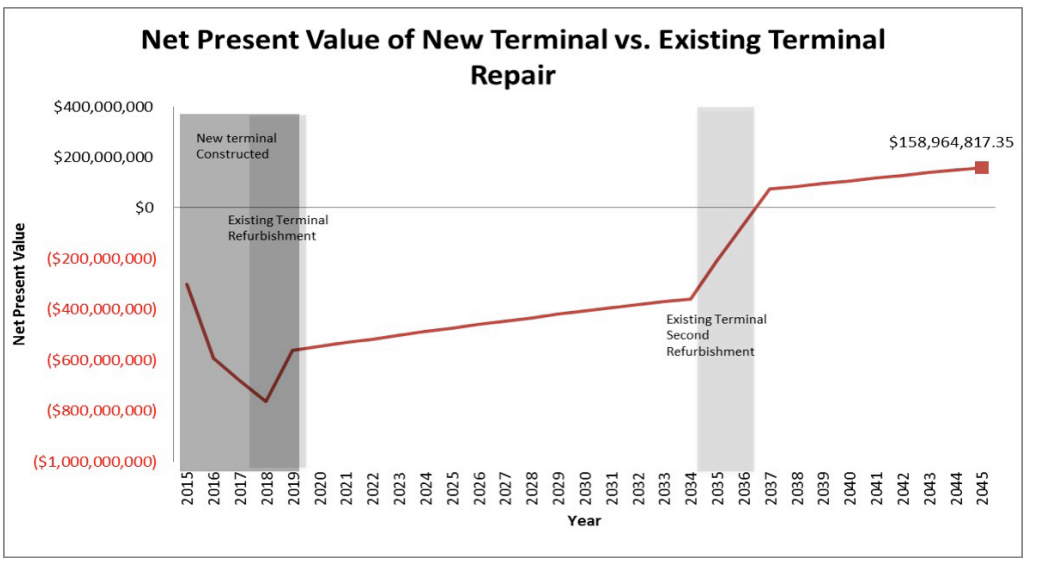
the new terminal plan is $159 million ($158,964,817.35). Figure 6 demonstrates the net present value comparison of the two options.

This model attempts to show the conditions under which a new terminal plan would have a highly positive comparative NPV. In order for this to be the case, the existing terminal would have to be repaired at higher cost estimates, those repairs would have to be repeated in 2035, and the rate of inflation would have to double, increasing to an average of 3 percent.[34]

## Overview of Net Present Value Results

The proposed new terminal project does not attain a positive net present value compared to repairing the existing terminal structure in three of our models, even if the repairs are performed twice. The reason for this is that the new terminal plan is approximately twice as expensive upfront as the higher estimates of repairing the existing terminals. The additional cost savings and

**Figure 6 (Model 4)**



concession revenue that result from the new terminal plan simply do not generate enough savings and revenue to overcome the initial cost. Given MCI's projected level of passengers and the performance of peer airports, the new terminal would only achieve an extra $7 million to $9 million per year from these sources. Such additional revenues are not sufficient to overcome the much higher initial cost of implementing the new terminal plan versus repairing the existing structure, even with the stipulation that capital improvements on the existing terminals would exceed those of the new terminal by $10 million per year. As Model 4 demonstrates, the comparative net present value of the new terminal plan could be positive, but only if the more expensive refurbishment of all three existing terminals is performed twice, no major repairs are required for the new terminal, and the rate of inflation remains above its current level for 25 years.

## IV. Conclusion

In this essay, we compared the relative costs of the KCAD's proposal to build a new airport terminal plan with the alternative of repairing and maintaining the existing MCI facility. Our analysis indicated that the cost of implementing the new terminal plan is likely to be much more costly than simply repairing the existing terminals. Even if the new terminal performs as well as peer airports with new terminals, the new terminal plan would be more expensive than performing major repairs on the existing MCI terminals. The magnitude of that relative expense would depend on what repairs are undertaken and the future needs of the existing terminals, but it could be as great as $468 million.

While it is possible to generate a scenario that makes the new terminal plan comparatively less expensive, any realistic comparison between repairing the existing terminals and the new terminal plan using the latest cost estimates demonstrate that the new terminal plan is much more costly than maintaining the current structure. While these calculations are based on many assumptions, it suggests that keeping the current terminal system will have a higher net present value than a new terminal.

Whether a new terminal is a desirable option on other grounds, such as environmental friendliness, providing better amenities for users, or civic pride, that is not addressed here. Nor do we imply that these considerations are less important or should be ignored. From a purely financial aspect, however, the new terminal plan is likely to be far more expensive than repairing the existing terminals, even if it succeeds in raising revenue and lowering airport expenses.

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***For the net present value calculation, it is assumed that for the new terminal plan, security costs will be halved, maintenance costs will decrease due to a reduction in the new airport's terminal square footage, and retail and concession sales will perform as well as peer airports with new terminals.***

*Another source for the new terminal plan to break even is increasing passengers. Research shows that underlying market factors, and not terminal desirability, attract passengers and flights.*

# Appendix I. Net Present Value Tables

## NPV Equation:

$$\mathrm{NPV}(i,N) = \sum_{t=0}^{N} \frac{R_t}{(1+i)^t}$$

$t$ = the time of the cash flow

$i$ = cost of capital, or the real interest rate

$R$ = net cash flow, or Security Savings$_{(t)}$ (Chart 1 Column G)+ Maintenance Savings$_{(t)}$ (Chart 3 Column C)+ New Terminal New Concessions Revenue$_{(t)}$ (Chart 5 Column F)+ New Terminal New Retail Revenue$_{(t)}$ (Chart 7 Column F)+ Existing Terminal Repair Costs$_{(t)}$ (Chart 8 Cell (c))- New Terminal Plan Costs$_{(t)}$ (Chart 8 Cell (b))

## Net Present Value Cash Flow:

| Year | New Costs & Revenues New Terminal Plan (R) | Discounted Cash Flow (B)=(R)/ (1+(i))^t |
|---|---|---|
| **2015** | -305,750,000.00 | -295,410,628.02 |
| **2016** | -305,750,000.00 | -285,420,896.64 |
| **2017** | -152,416,666.67 | -137,471,100.72 |
| **2018** | -152,416,666.67 | -132,822,319.54 |
| **2019** | 160,487,870.74 | 135,126,480.77 |
| **2020** | 17,048,721.08 | 13,869,145.59 |
| **2021** | 16,972,224.23 | 13,340,014.83 |
| **2022** | 16,920,032.65 | 12,849,268.33 |
| **2023** | 17,567,786.15 | 12,890,028.81 |
| **2024** | 17,553,281.68 | 12,443,851.63 |
| **2025** | 17,553,611.80 | 12,023,271.16 |
| **2026** | 17,566,795.60 | 11,625,411.93 |
| **2027** | 17,591,227.13 | 11,247,903.68 |
| **2028** | 17,625,594.61 | 10,888,771.39 |
| **2029** | 17,668,819.18 | 10,546,352.41 |
| **2030** | 17,391,322.66 | 10,029,678.59 |
| **2031** | 17,449,732.71 | 9,723,057.01 |
| **2032** | 17,514,742.57 | 9,429,256.77 |
| **2033** | 17,585,830.26 | 9,147,369.68 |
| **2034** | 17,662,555.67 | 8,876,597.91 |
| **2035** | 161,077,879.97 | 78,214,731.60 |
| **2036** | 161,164,821.00 | 75,610,577.43 |
| **2037** | 161,256,444.25 | 73,095,229.50 |
| **2038** | 18,019,188.81 | 7,891,632.29 |
| **2039** | 18,119,528.03 | 7,667,223.73 |
| **2040** | 18,223,964.56 | 7,450,643.22 |
| **2041** | 18,332,359.59 | 7,241,506.47 |
| **2042** | 18,444,596.12 | 7,039,460.16 |
| **2043** | 18,560,576.10 | 6,844,178.19 |
| **2044** | 18,680,218.08 | 6,655,358.41 |
| **2045** | 18,803,455.17 | 6,472,719.93 |

| Cumulative Discounted Cash Flow $(C)=(B)_i+(B)_{i+1}$ |
|---|
| -295,410,628.02 |
| -580,831,524.66 |
| -718,302,625.38 |
| -851,124,944.92 |
| -715,998,464.15 |
| -702,129,318.56 |
| -688,789,303.73 |
| -675,940,035.40 |
| -663,050,006.59 |
| -650,606,154.97 |
| -638,582,883.81 |
| -626,957,471.87 |
| -615,709,568.19 |
| -604,820,796.79 |
| -594,274,444.39 |
| -584,244,765.80 |
| -574,521,708.78 |
| -565,092,452.01 |
| -555,945,082.33 |
| -547,068,484.42 |
| -468,853,752.82 |
| -393,243,175.39 |
| -320,147,945.89 |
| -312,256,313.60 |
| -304,589,089.87 |
| -297,138,446.65 |
| -289,896,940.18 |
| -282,857,480.01 |
| -276,013,301.82 |
| -269,357,943.41 |
| -262,885,223.49 |

The cash flow uses the information from the following eight charts to calculate the cash flow of the new terminal plan compared to simply refurbishing the terminals. The year 2015 is calculated as year zero and the analysis runs until 2045. For the new costs and additional revenues for the new terminal plan, the cost of the terminal plan, Chart 8 (a), is divided among its four years of construction 2015-19. New terminal addition revenues come from Chart 1 (F), Chart 3 (C), Chart 5 (F), and Chart 7 (F).

The costs of the refurbishing the existing terminals, Chart 8 (c), is divided among three years from 2017 to 2019, with an additional project from 2035 to 2037. In addition, there is an additional $10 million per year in capital expenditures due to the existing structures' ages. These combine to make the full extra costs of maintaining the existing structure, which is added positive cash flow to (R) as costs not incurred.

The positive and negative cash flows of the new terminal plan over repairing the existing structures (R) is discounted at the inflation-adjusted cost of capital (i) to create column (B). By adding these values together, as is done in (C), the total comparative net present value is found.

Cost of Security Per/Enp Existing Terminals (C) refers to the current amount MCI spends on security per enplaned passenger. Cost of Security Per/Enp New Terminal (D)

***The proposed new terminal project does not attain a positive net present value compared to repairing the existing terminal structure in three of our models, even if the repairs are performed twice.***

| Value | | | | | | |
|---|---|---|---|---|---|---|

## Chart 1: Security Savings

| Year | MCI Enplanements (A) | Security Costs Deflation Rate (B) | Cost of Security Per/ Enp Existing Terminals (C)=($C_{i-1}$*(1+B) | Cost of Security Per/ Enp New Terminal (D)=($D_{i-1}$*(1+B) | Projected Security Costs Existing Terminals (E)=(A*C) | Projected Security Costs New Terminal (F)=(A*D) | New Terminal Security Savings (G)=(E)-(F) |
|---|---|---|---|---|---|---|---|
| **2015** | 5053547.233 | -0.098366635 | $1.75 | $1.75 | $8,858,228.97 | $8,858,228.97 | $0.00 |
| **2016** | 5149564.63 | -0.088529971 | $1.58 | $1.58 | $8,138,625.42 | $8,138,625.42 | $0.00 |
| **2017** | 5247406.358 | -0.079676974 | $1.44 | $1.44 | $7,559,057.29 | $7,559,057.29 | $0.00 |
| **2018** | 5347107.079 | -0.071709277 | $1.33 | $1.33 | $7,088,953.19 | $7,088,953.19 | $0.00 |
| **2019** | 5448702.114 | -0.064538349 | $1.23 | $0.62 | $6,705,641.07 | $3,352,820.53 | $3,352,820.53 |
| **2020** | 5552227.454 | -0.058084514 | $1.15 | $0.58 | $6,392,054.59 | $3,196,027.30 | $3,196,027.30 |
| **2021** | 5657719.775 | -0.052276063 | $1.08 | $0.54 | $6,135,169.94 | $3,067,584.97 | $3,067,584.97 |
| **2022** | 5765216.451 | -0.047048457 | $1.03 | $0.51 | $5,924,921.91 | $2,962,460.95 | $2,962,460.95 |
| **2023** | 5874755.564 | -0.042343611 | $0.98 | $0.49 | $5,753,440.58 | $2,876,720.29 | $2,876,720.29 |
| **2024** | 5986375.919 | -0.03810925 | $0.94 | $0.47 | $5,614,505.70 | $2,807,252.85 | $2,807,252.85 |
| **2025** | 6100117.062 | -0.034298325 | $0.90 | $0.45 | $5,503,151.38 | $2,751,575.69 | $2,751,575.69 |
| **2026** | 6216019.286 | -0.030868492 | $0.87 | $0.44 | $5,415,376.15 | $2,707,688.08 | $2,707,688.08 |
| **2027** | 6334123.652 | -0.027781643 | $0.84 | $0.42 | $5,347,927.68 | $2,673,963.84 | $2,673,963.84 |
| **2028** | 6454472.002 | -0.025003479 | $0.82 | $0.41 | $5,298,141.18 | $2,649,070.59 | $2,649,070.59 |
| **2029** | 6577106.97 | -0.022503131 | $0.80 | $0.40 | $5,263,816.93 | $2,631,908.47 | $2,631,908.47 |
| **2030** | 6702072.002 | -0.020252818 | $0.78 | $0.39 | $5,243,126.50 | $2,621,563.25 | $2,621,563.25 |
| **2031** | 6829411.37 | -0.018227536 | $0.77 | $0.38 | $5,234,540.24 | $2,617,270.12 | $2,617,270.12 |
| **2032** | 6959170.186 | -0.016404782 | $0.75 | $0.38 | $5,236,770.89 | $2,618,385.45 | $2,618,385.45 |
| **2033** | 7091394.42 | -0.014764304 | $0.74 | $0.37 | $5,248,729.20 | $2,624,364.60 | $2,624,364.60 |
| **2034** | 7226130.914 | -0.013287874 | $0.73 | $0.36 | $5,269,488.84 | $2,634,744.42 | $2,634,744.42 |
| **2035** | 7363427.401 | -0.011959086 | $0.72 | $0.36 | $5,298,258.43 | $2,649,129.22 | $2,649,129.22 |
| **2036** | 7503332.522 | -0.010763178 | $0.71 | $0.36 | $5,334,359.13 | $2,667,179.57 | $2,667,179.57 |
| **2037** | 7645895.84 | -0.00968686 | $0.70 | $0.35 | $5,377,206.42 | $2,688,603.21 | $2,688,603.21 |
| **2038** | 7791167.861 | -0.008718174 | $0.70 | $0.35 | $5,426,295.42 | $2,713,147.71 | $2,713,147.71 |
| **2039** | 7939200.05 | -0.007846357 | $0.69 | $0.35 | $5,481,188.80 | $2,740,594.40 | $2,740,594.40 |
| **2040** | 8090044.851 | -0.007061721 | $0.68 | $0.34 | $5,541,506.89 | $2,770,753.45 | $2,770,753.45 |
| **2041** | 8243755.703 | -0.006355549 | $0.68 | $0.34 | $5,606,919.43 | $2,803,459.71 | $2,803,459.71 |
| **2042** | 8400387.062 | -0.005719994 | $0.68 | $0.34 | $5,677,138.78 | $2,838,569.39 | $2,838,569.39 |
| **2043** | 8559994.416 | -0.005147995 | $0.67 | $0.34 | $5,751,914.23 | $2,875,957.11 | $2,875,957.11 |

This chart estimates the project security cost savings arising from the new terminal's centralized security. Enplanements (boarding passengers) at MCI in this section and others are paced to grow at 1.9 percent per year in line with the Aviation Department's own growth estimates.[35]

refers to the project cost of security per enplaned passenger at a new terminal. The initial amount was derived by calculating the mean Cost of Security Per/Enp from the Indianapolis, Raleigh/Durham, Austin, and Sacramento airports.[36] These airports were used because they are of a similar size to MCI and have new terminals.

Security Costs Deflation Rate (B) refers to the projected amount security costs will fall at MCI, regardless of whether or not a new terminal is constructed. The reason for this is that over the last three years, security costs have decreased close to 10 percent per year according to MCI data recorded with the FAA.[37] This chart assumes that trend will continue, although decreasing at 10 percent per year.

The total security savings is found by subtracting the Projected Security Costs for the New Terminal from the Projected Security Costs for Existing Terminals.

**Chart 2: Maintenance Savings Assumptions**

| | |
|---|---|
| 2013 Maintenance Cost (a) | $3,909,267 |
| MCI 2013 $ft^2$ (b) | 1,100,000[38] |
| Current MCI Terminal Maintenance/$ft^2$ (c)=(a)/(b) | $3.55 |

This chart estimates the amount MCI spends on maintenance according to the FAA.[39] Accounting for the area of the terminal, this chart estimates the current MCI terminal maintenance per square foot.

***The additional cost savings and concession revenue that result from the new terminal plan simply do not generate enough savings and revenue to overcome the initial cost.***

*While it is possible to generate a scenario that makes the new terminal plan comparatively less expensive, any realistic comparison between repairing the existing terminals and the new terminal plan using the latest cost estimates demonstrate that the new terminal plan is much more costly than maintaining the current structure.*

**Chart 3: Maintenance Savings**

| Year | Current Configuration (A) | New Terminal (B) | Maintenance Savings (C)=(A-B) |
|---|---|---|---|
| **2015** | $3,909,267 | $3,909,267 | $0 |
| **2016** | $3,909,267 | $3,909,267 | $0 |
| **2017** | $3,909,267 | $3,909,267 | $0 |
| **2018** | $3,909,267 | $3,909,267 | $0 |
| **2019** | $3,909,267 | $2,790,546 | $1,118,721 |
| **2020** | $3,909,267 | $2,790,546 | $1,118,721 |
| **2021** | $3,909,267 | $2,790,546 | $1,118,721 |
| **2022** | $3,909,267 | $2,790,546 | $1,118,721 |
| **2023** | $4,588,823 | $2,790,546 | $1,798,277 |
| **2024** | $4,588,823 | $2,790,546 | $1,798,277 |
| **2025** | $4,588,823 | $2,790,546 | $1,798,277 |
| **2026** | $4,588,823 | $2,790,546 | $1,798,277 |
| **2027** | $4,588,823 | $2,790,546 | $1,798,277 |
| **2028** | $4,588,823 | $2,790,546 | $1,798,277 |
| **2029** | $4,588,823 | $2,790,546 | $1,798,277 |
| **2030** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2031** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2032** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2033** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2034** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2035** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2036** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2037** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2038** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2039** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2040** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2041** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2042** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2043** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2044** | $4,588,823 | $3,119,231 | $1,469,592 |
| **2045** | $4,588,823 | $3,119,231 | $1,469,592 |

Chart 3 uses the data from Chart 2 to first calculate the continuing costs of maintenance for MCI with its existing structure intact. For the new terminal, research showed that new terminals have similar maintenance costs per foot[2], likely due to modern amenities and increased service options in smaller areas, canceling out the savings of more energy-efficient buildings.[40] This chart assumes that the existing terminal design will see this as an increase in cost as

new amenities are added over time, increasing the cost after 2023. In calculating the amount a new terminal would spend on maintenance, we used the initial square footage of 791,270 feet$^2$ until 2030, when the area is projected to be 884,470 feet.[2 41]

The total savings in maintenance (F) from the new terminal are the maintenance costs of the new terminal subtracted from the maintenance costs of the existing structure over time.

**Chart 4: New Terminal New Food Sales Assumptions**

| | |
|---|---|
| MCI Current Sales per Epax (a) | $3.71 |
| Peer Airports Sales Per Epax (b) | $4.67 |
| Current Effective  f Concessions Rent (c) | 9.20% |
| New Terminal Effective  f Concessions Rent (d) | 14% |

This chart estimates the current food concession sales per enplaned passengers at MCI and an average for peer airports with connecting flights as a similar percentage to MCI. This is important, as connecting passengers buy more food concessions. The closest airports in this category with new terminals were Austin (AUS) and Sacramento (SMF).[42] The effective rent represents the amount of revenue that MCI receives by percentage of sales. We assume that sales per enplaned passengers and effective concessions rent will increase to peer airport levels with a new airport terminal.

***From a purely financial aspect, however, the new terminal plan is likely to be far more expensive than repairing the existing terminals, even if it succeeds in raising revenue and lowering airport expenses.***

## Chart 5: New Terminal New Food Sales

| Year | Enplanements (A) | F Concessions Existing Terminals (B)=(A)*Chart 4 (a) | F Concessions New Terminal (C2019)=(A)*Chart 4 (b) | Revenue to MCI Existing Terminals (D)=(B)*Chart 4 (c) | Revenue to MCI New Terminal (E2019)=(C)*Chart 4 (d) | New Terminal New Concessions (F)=(E)-(D) |
|---|---|---|---|---|---|---|
| **2015** | 5053547.233 | $18,748,660.23 | $18,748,660.23 | $1,724,876.74 | $1,724,876.74 | $0.00 |
| **2016** | 5149564.63 | $19,104,884.78 | $19,104,884.78 | $1,757,649.40 | $1,757,649.40 | $0.00 |
| **2017** | 5247406.358 | $19,467,877.59 | $19,467,877.59 | $1,791,044.74 | $1,791,044.74 | $0.00 |
| **2018** | 5347107.079 | $19,837,767.26 | $19,837,767.26 | $1,825,074.59 | $1,825,074.59 | $0.00 |
| **2019** | 5448702.114 | $20,214,684.84 | $25,445,438.87 | $1,859,751.01 | $3,562,361.44 | $1,702,610.44 |
| **2020** | 5552227.454 | $20,598,763.85 | $25,928,902.21 | $1,895,086.27 | $3,630,046.31 | $1,734,960.03 |
| **2021** | 5657719.775 | $20,990,140.37 | $26,421,551.35 | $1,931,092.91 | $3,699,017.19 | $1,767,924.28 |
| **2022** | 5765216.451 | $21,388,953.03 | $26,923,560.83 | $1,967,783.68 | $3,769,298.52 | $1,801,514.84 |
| **2023** | 5874755.564 | $21,795,343.14 | $27,435,108.48 | $2,005,171.57 | $3,840,915.19 | $1,835,743.62 |
| **2024** | 5986375.919 | $22,209,454.66 | $27,956,375.54 | $2,043,269.83 | $3,913,892.58 | $1,870,622.75 |
| **2025** | 6100117.062 | $22,631,434.30 | $28,487,546.68 | $2,082,091.96 | $3,988,256.54 | $1,906,164.58 |
| **2026** | 6216019.286 | $23,061,431.55 | $29,028,810.07 | $2,121,651.70 | $4,064,033.41 | $1,942,381.71 |
| **2027** | 6334123.652 | $23,499,598.75 | $29,580,357.46 | $2,161,963.09 | $4,141,250.04 | $1,979,286.96 |
| **2028** | 6454472.002 | $23,946,091.13 | $30,142,384.25 | $2,203,040.38 | $4,219,933.79 | $2,016,893.41 |
| **2029** | 6577106.97 | $24,401,066.86 | $30,715,089.55 | $2,244,898.15 | $4,300,112.54 | $2,055,214.39 |
| **2030** | 6702072.002 | $24,864,687.13 | $31,298,676.25 | $2,287,551.22 | $4,381,814.68 | $2,094,263.46 |
| **2031** | 6829411.37 | $25,337,116.18 | $31,893,351.10 | $2,331,014.69 | $4,465,069.15 | $2,134,054.46 |
| **2032** | 6959170.186 | $25,818,521.39 | $32,499,324.77 | $2,375,303.97 | $4,549,905.47 | $2,174,601.50 |
| **2033** | 7091394.42 | $26,309,073.30 | $33,116,811.94 | $2,420,434.74 | $4,636,353.67 | $2,215,918.93 |
| **2034** | 7226130.914 | $26,808,945.69 | $33,746,031.37 | $2,466,423.00 | $4,724,444.39 | $2,258,021.39 |
| **2035** | 7363427.401 | $27,318,315.66 | $34,387,205.96 | $2,513,285.04 | $4,814,208.83 | $2,300,923.79 |
| **2036** | 7503332.522 | $27,837,363.66 | $35,040,562.88 | $2,561,037.46 | $4,905,678.80 | $2,344,641.35 |
| **2037** | 7645895.84 | $28,366,273.57 | $35,706,333.57 | $2,609,697.17 | $4,998,886.70 | $2,389,189.53 |
| **2038** | 7791167.861 | $28,905,232.76 | $36,384,753.91 | $2,659,281.41 | $5,093,865.55 | $2,434,584.13 |
| **2039** | 7939200.05 | $29,454,432.19 | $37,076,064.23 | $2,709,807.76 | $5,190,648.99 | $2,480,841.23 |
| **2040** | 8090044.851 | $30,014,066.40 | $37,780,509.45 | $2,761,294.11 | $5,289,271.32 | $2,527,977.22 |
| **2041** | 8243755.703 | $30,584,333.66 | $38,498,339.13 | $2,813,758.70 | $5,389,767.48 | $2,576,008.78 |
| **2042** | 8400387.062 | $31,165,436.00 | $39,229,807.58 | $2,867,220.11 | $5,492,173.06 | $2,624,952.95 |
| **2043** | 8559994.416 | $31,757,579.28 | $39,975,173.92 | $2,921,697.29 | $5,596,524.35 | $2,674,827.06 |
| **2044** | 8722634.31 | $32,360,973.29 | $40,734,702.23 | $2,977,209.54 | $5,702,858.31 | $2,725,648.77 |
| **2045** | 8888364.362 | $32,975,831.78 | $41,508,661.57 | $3,033,776.52 | $5,811,212.62 | $2,777,436.10 |

Chart 5 estimates the additional food concessions revenue that the proposed new terminal could expect to realize. Concessions assuming MCI retains the existing terminal structure is taken by multiplying enplanements by the MCI's current sales per enplaned passengers. Food concessions at the new terminal are calculated at the higher rate of sales per enplaned passengers based on peer airports described in chart 4.

The revenue to MCI (D) and (E), the amount the airport receives in rents from each sale, is the effective rental rate multiplied by the total sales in a given year. The existing terminals receive the current rental rate and the refurbished terminals receive an increased rental rate.

The total new revenue realized by a new terminal is the (E)-(D), or the amount of revenue to MCI projected from the continued use of the existing terminals subtracted from the amount of revenue projected from the new terminal plan.

**Chart 6: New Terminal New Retail Assumptions**

| | |
|---|---|
| MCI Current sales per Epax (a) | $1.23 |
| Peer Airports Sales Per Epax (b) | $2.27 |
| Current Effective Retail Rent (c) | 14.90% |
| New Terminal Effective Rent (d) | 16% |

This chart estimates the current retail sales per enplaned passenger at MCI and an average for peer airports with connecting flights as a similar percentage to MCI, specifically Oakland and Sacramento. This is important as connecting passengers buy more retail goods. The closest airports in this category with new terminals were AUS and SMF.[43] The effective rent represents the amount of revenue that MCI receives by percentage of sales. We assume that sales per enplaned passengers and effective retails rent will increase to peer airport levels with a new airport terminal.

***MCI's projected level of passengers and the performance of peer airports, the new terminal would only achieve an extra $7 million to $9 million per year from these sources.***

**Chart 7: New Terminal New Retail**

| Year | Enplanements (A) | Retail Sales Existing Terminals (B)=(A)*Chart 6 (a) | Retail Sales New Terminal (C)=(A)*Chart 6 (b) | Revenue to MCI Existing Terminals (D)=(B)*Chart 6 (c) | Revenue to MCI New Terminal (E)=(C)*Chart 6 (d) | New Terminal New Retail Revenue (F)=(E)-(D) |
|---|---|---|---|---|---|---|
| **2015** | 5053547.233 | $6,215,863.10 | $6,215,863.10 | $926,163.60 | $926,163.60 | $0.00 |
| **2016** | 5149564.63 | $6,333,964.50 | $6,333,964.50 | $943,760.71 | $943,760.71 | $0.00 |
| **2017** | 5247406.358 | $6,454,309.82 | $6,454,309.82 | $961,692.16 | $961,692.16 | $0.00 |
| **2018** | 5347107.079 | $6,576,941.71 | $6,576,941.71 | $979,964.31 | $979,964.31 | $0.00 |
| **2019** | 5448702.114 | $6,701,903.60 | $12,368,553.80 | $998,583.64 | $1,978,968.61 | $980,384.97 |
| **2020** | 5552227.454 | $6,829,239.77 | $12,603,556.32 | $1,017,556.73 | $2,016,569.01 | $999,012.29 |
| **2021** | 5657719.775 | $6,958,995.32 | $12,843,023.89 | $1,036,890.30 | $2,054,883.82 | $1,017,993.52 |
| **2022** | 5765216.451 | $7,091,216.23 | $13,087,041.34 | $1,056,591.22 | $2,093,926.62 | $1,037,335.40 |
| **2023** | 5874755.564 | $7,225,949.34 | $13,335,695.13 | $1,076,666.45 | $2,133,711.22 | $1,057,044.77 |
| **2024** | 5986375.919 | $7,363,242.38 | $13,589,073.34 | $1,097,123.11 | $2,174,251.73 | $1,077,128.62 |
| **2025** | 6100117.062 | $7,503,143.99 | $13,847,265.73 | $1,117,968.45 | $2,215,562.52 | $1,097,594.06 |
| **2026** | 6216019.286 | $7,645,703.72 | $14,110,363.78 | $1,139,209.85 | $2,257,658.20 | $1,118,448.35 |
| **2027** | 6334123.652 | $7,790,972.09 | $14,378,460.69 | $1,160,854.84 | $2,300,553.71 | $1,139,698.87 |
| **2028** | 6454472.002 | $7,939,000.56 | $14,651,651.44 | $1,182,911.08 | $2,344,264.23 | $1,161,353.15 |
| **2029** | 6577106.97 | $8,089,841.57 | $14,930,032.82 | $1,205,386.39 | $2,388,805.25 | $1,183,418.86 |
| **2030** | 6702072.002 | $8,243,548.56 | $15,213,703.45 | $1,228,288.74 | $2,434,192.55 | $1,205,903.82 |
| **2031** | 6829411.37 | $8,400,175.99 | $15,502,763.81 | $1,251,626.22 | $2,480,442.21 | $1,228,815.99 |
| **2032** | 6959170.186 | $8,559,779.33 | $15,797,316.32 | $1,275,407.12 | $2,527,570.61 | $1,252,163.49 |
| **2033** | 7091394.42 | $8,722,415.14 | $16,097,465.33 | $1,299,639.86 | $2,575,594.45 | $1,275,954.60 |
| **2034** | 7226130.914 | $8,888,141.02 | $16,403,317.17 | $1,324,333.01 | $2,624,530.75 | $1,300,197.74 |
| **2035** | 7363427.401 | $9,057,015.70 | $16,714,980.20 | $1,349,495.34 | $2,674,396.83 | $1,324,901.49 |
| **2036** | 7503332.522 | $9,229,099.00 | $17,032,564.82 | $1,375,135.75 | $2,725,210.37 | $1,350,074.62 |
| **2037** | 7645895.84 | $9,404,451.88 | $17,356,183.56 | $1,401,263.33 | $2,776,989.37 | $1,375,726.04 |
| **2038** | 7791167.861 | $9,583,136.47 | $17,685,951.04 | $1,427,887.33 | $2,829,752.17 | $1,401,864.83 |
| **2039** | 7939200.05 | $9,765,216.06 | $18,021,984.11 | $1,455,017.19 | $2,883,517.46 | $1,428,500.27 |
| **2040** | 8090044.851 | $9,950,755.17 | $18,364,401.81 | $1,482,662.52 | $2,938,304.29 | $1,455,641.77 |
| **2041** | 8243755.703 | $10,139,819.51 | $18,713,325.45 | $1,510,833.11 | $2,994,132.07 | $1,483,298.96 |
| **2042** | 8400387.062 | $10,332,476.09 | $19,068,878.63 | $1,539,538.94 | $3,051,020.58 | $1,511,481.64 |
| **2043** | 8559994.416 | $10,528,793.13 | $19,431,187.32 | $1,568,790.18 | $3,108,989.97 | $1,540,199.80 |
| **2044** | 8722634.31 | $10,728,840.20 | $19,800,379.88 | $1,598,597.19 | $3,168,060.78 | $1,569,463.59 |

| | | | | | |
|---|---|---|---|---|---|
| **2045** | 8888364.362 | $10,932,688.16 | $20,176,587.10 | $1,628,970.54 | $3,228,253. |

Chart 7 estimates the additional retail sales revenue that the proposed new terminal could expect to realize. Retail sales assuming that MCI remains with the existing terminal structure is taken by multiplying enplanements by the MCI's current sales per enplaned passengers. Retail sales at the new terminal are calculated at the higher rate of sales per enplaned passengers based on peer airports described in chart 6.
The revenue to MCI (D) and (E), the amount the airport receives in rents from each sale, is the effective rental rate multiplied by the total sales in a given year. The existing terminals receive the current rental rate and the refurbished terminals receive an increased rental rate.

The total new revenue realized by a new terminal is the (E)-(D), or the amount of revenue to MCI projected for the continued use of the existing terminals subtracted from the amount of revenue projected from the new terminal plan.

**Chart 8: Project Cost and Interest Rate Assumptions.**

| | |
|---|---|
| Cost of Capital (a) | 5% |
| New Terminal Base Cost (b) | $1,223,000,000 |
| Refurbishment Base Cost (c) | $460,000,000 |
| Inflation (2013) (d) | 1.50% |
| Cost of Capital Less Inflation (e)=(a)-(d) | 3.50% |

*All figures are taken from the Kansas City Aviation Department documents and press reports.*

***… additional revenues are not sufficient to overcome the much higher initial cost of implementing the new terminal plan versus repairing the existing structure, even with the stipulation that capital improvements on the existing terminals would exceed those of the new terminal by $10 million per year.***

*… the comparative net present value of the new terminal plan could be positive, but only if the more expensive refurbishment of all three existing terminals is performed twice, no major repairs are required for the new terminal, and the rate of inflation remains above its current level for 25 years.*

## NOTES:

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[21] Kansas City Aviation Department. "2013 Comprehensive Annual Financial Report." B-46.
[22] FAA: "Compliance Activity Tracking System (CATS): MCI Form 127 2010-2013." View online here: http://cats.airports.faa.gov/Reports/reports.cfm.
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***Even if the new terminal performs as well as peer airports with new terminals, the new terminal plan would be more expensive than performing major repairs on the existing MCI terminals.***

*The magnitude of that relative expense would depend on what repairs are undertaken and the future needs of the existing terminals, but it could be as great as $468 million.*

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[41] Kansas City Aviation Department. "Advance Terminal Planning Program Criteria Document." 68.

[42] All data comes from: Kansas City Aviation Department. "Advance Terminal Planning Program Criteria Document." 71-75.

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