



**Customer Service, Operations and Safety Committee**

**Board Information Item IV-C**

**October 12, 2006**

**Escalator Update -  
Analysis of Conversion to Stairs**

**Washington Metropolitan Area Transportation Authority  
Board Action/Information Summary**

<input type="checkbox"/> Action <input checked="" type="checkbox"/> Information	MEAD Number: N/A	Resolution: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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**PURPOSE**

The purpose of this summary is to update the WMATA Committee Members on the financial analysis of converting a limited number of escalators to stairs and to solicit feedback on the direction of this future effort

**DESCRIPTION**

Staff was asked to study the feasibility of replacing some escalators with stairs as an opportunity to control operating costs, and/or create a possible expense reduction that could create a funding mechanism for future improvements in escalators or elevators

Staff used the following criteria to identify escalators for possible conversion to stairs:

- a) Only consider short escalators; less than 30 feet high.
- b) Locations with multiple escalators where one escalator would be replaced with stairs, and two escalators would remain; one up, one down (i.e. Crystal City)
- c) Locations with three or more escalators side-by-side, two would remain and one would be converted to stairs (i.e. Federal Triangle).

Entrance units that are uncovered were considered because of the impact of long-term maintenance. However, no location met the selection criteria. Future codes will require weather protection (canopies) for escalators.

Cost analysis:

- a) The annual maintenance cost for each escalator is approximately \$51,000 per unit per year. This cost would be avoided if replaced by stairs. If all 23 selected escalators were converted to stairs, WMATA could achieve an annual reduction in expenses of \$1.2M.

- b) Replacing escalators with stairs would also reduce the need for mid-life overhaul. 18 of these escalators are programmed for rehabilitation. Avoiding the need for rehabilitation would save \$250,000 per unit in rehabilitation cost, or approximately \$4.5M in the long-term capital budget. This is a one-time savings.
- c) The cost to replace an escalator with stairs is \$604,440 per unit. This estimate includes the removal of the existing unit and replacement with stairs that meet WMATA design criteria (i.e. granite steps). The total cost to replace these 23 units with stairs would be \$13.9M.

## **SUMMARY**

Staff has identified 23 escalators at 15 stations that are candidates for replacement with stairs. The conversion would cost \$13.9 million, would save \$4.5 million in not having to rehabilitate 18 existing escalators, and would potentially reduce future operating budget by \$1.2 million per year. It could be possible to convert this expense savings into a capital-funding source for other escalator and elevator projects, such as more elevators at the major transfer locations.

### **Alternatives:**

- 1) Take no action.
- 2) Consider for future station construction.

## **FUNDING IMPACT**

There is no funding programmed for this item. If the Board of Directors has a favorable reaction to the concept, funds will need to be identified.

## **NEXT STEPS**

The objective of the Information Item is to brief the Committee on the analysis to date and solicit feedback on this potential program. If the Committee wishes to advance this concept, the next step is to seek public input. This will include presenting the concept to the Elderly and Disabled Transportation Advisory Committee and the Riders' Advisory Council to gain feedback.



# Escalator Update – Analysis on Conversion to Stairs

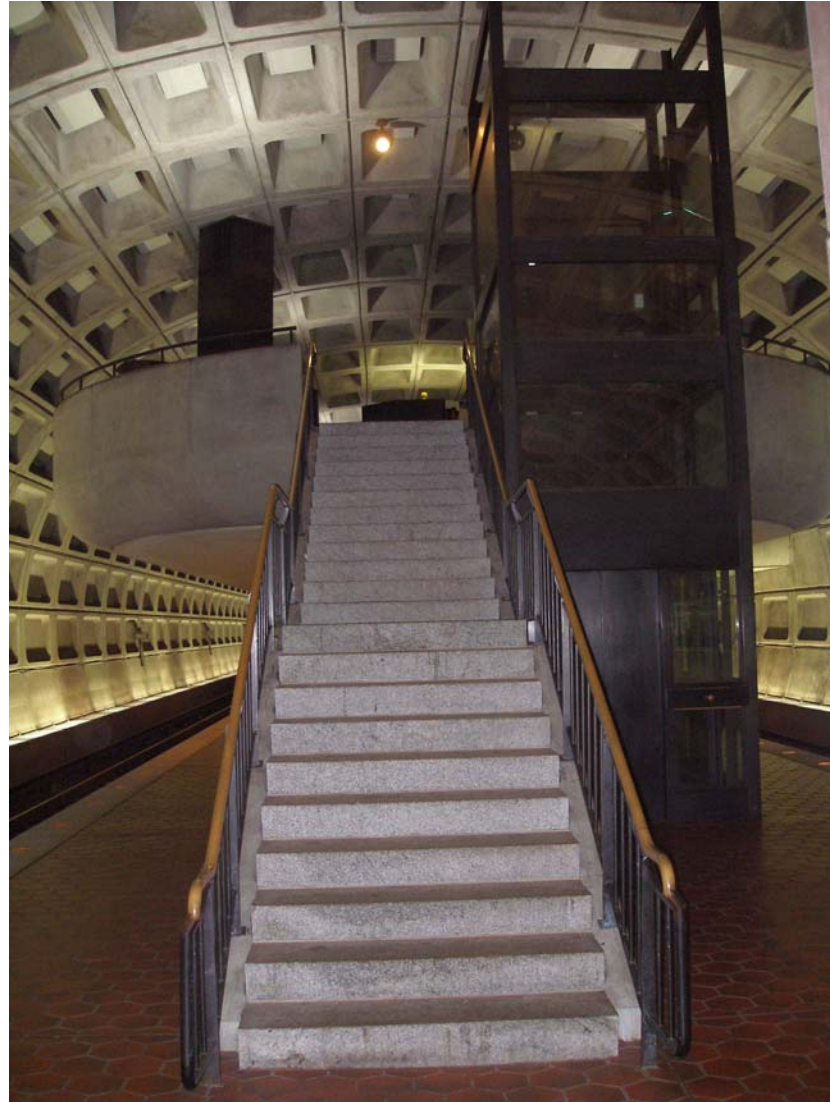
*Presented to the Board of Directors:*

**Customer Service, Operations and Safety  
Committee**

October 12, 2006



# Conversion to Stairs



**Example of WMATA Staircase**

# Cost analysis



- Capital cost to convert escalators to stairs \$604,000 per unit for 23 locations \$13.9M
- Cost of not having to rehabilitate 18 existing escalators \$4.5M
- Savings in annual operating budget \$51,000 per year per unit \$1.2M

**WMATA would recoup the investment  
in less than 10 years**

# Candidates

Staff has identified the following 23 escalators at 15 stations

	<b>Station</b>	<b>Rise</b>	<b>Jurisdiction</b>	<b>Type</b>
1	Ballston-MU	10'-11"	VA	Platform
2	Ballston-MU	10'-11"	VA	Platform
3	Courthouse	17'-5"	VA	Entrance
4	Crystal City	10'-11"	VA	Platform
5	Crystal City	10'-11"	VA	Platform
6	East Falls Church	23'-10"	VA	Platform
7	Farragut North	11'-3"	DC	Platform
8	Farragut North	24'-10"	DC	Entrance
9	Farragut North	24'-10"	DC	Entrance
10	Federal Triangle	13'-8"	DC	Mezzanine
11	Federal Triangle	13'-8"	DC	Platform
12	Federal Triangle	12'-0"	DC	Platform
13	Foggy-Bottom-GWU	12'-4"	DC	Platform
14	Friendship Heights	12'-5"	MD	Platform
15	Glenmont	27'-6"	MD	Entrance
16	L'Enfant Plaza	11'-4"	DC	Platform
17	L'Enfant Plaza	11'-4"	DC	Platform
18	Pentagon City	10'-10"	VA	Platform
19	Pentagon City	10'-10"	VA	Platform
20	Potomac Avenue	11'-0"	DC	Platform
21	Rhode Island Avenue	21'-2"	DC	Platform
22	Stadium Armory	12'-2"	DC	Platform
23	Vienna-Fairfax/GM	16'-3"	VA	Platform

## Next Steps

- Obtain initial feed back on concept from committee today and if desired then seek Input from
  - Elderly and Disabled Transportation Advisory Committee
  - Riders Advisory Council