

# **Requirement Detail**

**by Asset Name and Category**

**LAURA MACARTHUR**

**District:** Duluth Public Schools  
**Facility:** Laura MacArthur Elementary School  
**Category:** Deferred Maintenance

**Asset Name:** Laura MacArthur - Parking  
**Asset Number:** 525a

<b>Requirement Name</b>	Vehicular Pavement: Parking Lots		
<b>Linked System</b>	Parking Lots	<b>Inspection Date</b>	08/01/2006
<b>Prime System</b>	Paving and Surfacing	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Inspec	<b>Actual Cost</b>	0
<b>Action Date</b>	08/01/2009	<b>Total Estimated Cost:</b>	42,480
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Parking Lots	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Deteriorated parking lots (across Central Ave.)

**PHOTOS**



Parking Lots

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**ACTION DESCRIPTION**

Repair and overlay bituminous pavement parking lots.

**District:** Duluth Public Schools  
**Facility:** Laura MacArthur Elementary School  
**Category:** Deferred Maintenance

**Asset Name:** Laura MacArthur - Sidewalks  
**Asset Number:** 525b

<b>Requirement Name</b>	Pedestrian Paving: Sidewalk at North Side		
<b>Linked System</b>	Pedestrian Paving	<b>Inspection Date</b>	08/01/2006
<b>Prime System</b>	Paving and Surfacing	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Inspec	<b>Actual Cost</b>	0
<b>Action Date</b>	08/01/2007	<b>Total Estimated Cost:</b>	11,800
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Sidewalk at North Side	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Broken/uneven sidewalks.

**PHOTOS**



Sidewalk

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**ACTION DESCRIPTION**

Replace broken/unlevel sections of portland cement concrete sidewalk.

**District:** Duluth Public Schools  
**Facility:** Laura MacArthur Elementary School  
**Category:** Deferred Maintenance

**Asset Name:** Laura MacArthur - Sidewalks  
**Asset Number:** 525b

<b>Requirement Name</b>	Pedestrian Paving: Site Grading at NE Corner		
<b>Linked System</b>	Pedestrian Paving	<b>Inspection Date</b>	08/01/2006
<b>Prime System</b>	Pedestrian Paving	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Inspec	<b>Actual Cost</b>	0
<b>Action Date</b>	08/01/2007	<b>Total Estimated Cost:</b>	11,800
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	NE Corner	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Bituminous pavement along building at NE side along 6th ST adjacent to main entrance-sloping toward building/poor drainage.

**PHOTOS**



Site Grading

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**ACTION DESCRIPTION**

Reconstruct bituminous pavement.

**District:** Duluth Public Schools  
**Facility:** Laura MacArthur Elementary School  
**Category:** Life Safety

**Asset Name:** Laura MacArthur - Sidewalks  
**Asset Number:** 525b

<b>Requirement Name</b>	Pedestrian Paving: Sidewalks and Stairs		
<b>Linked System</b>	Pedestrian Paving	<b>Inspection Date</b>	08/01/2006
<b>Prime System</b>	Paving and Surfacing	<b>Finish Date</b>	-
<b>Priority</b>	1- Currently Critical (Immediately)	<b>Status</b>	Open
<b>Inspector Name</b>	Inspec	<b>Actual Cost</b>	0
<b>Action Date</b>	08/01/2006	<b>Total Estimated Cost:</b>	11,800
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Sidewalks and Stairs adjacent to Drop-Off Area	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Broken/unlevel sections of sidewalk.

**PHOTOS**



Sidewalks and Stairs

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**ACTION DESCRIPTION**

Replace broken/unlevel sections of sidewalk, regrade, improve drainage at starways to lower lay area at west side of building along 56th ave w. Erosion of slope requires regrade/embankment stabilization.

**District:** Duluth Public Schools  
**Facility:** Laura MacArthur Elementary School  
**Category:** Deferred Maintenance

**Asset Name:** Laura MacArthur - Site  
**Asset Number:** 525c

<b>Requirement Name</b>	Site: Fencing	<b>Inspection Date</b>	08/01/2006
<b>Linked System</b>	Site Improvements	<b>Finish Date</b>	-
<b>Prime System</b>	Fences and Gates	<b>Status</b>	Open
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Actual Cost</b>	0
<b>Inspector Name</b>	Inspec	<b>Total Estimated Cost:</b>	2,360
<b>Action Date</b>	08/01/2007	<b>Funding Type</b>	-
<b>Funding Year</b>	-	<b>Annual Energy/Ops Savings \$</b>	-
<b>Requirement Location</b>	Play Area		
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Fencing around play area adjacent to entrance on south side needs straightening.

**PHOTOS**

**ACTION DESCRIPTION**

Repair/straighten and adjust fencing.

**District:** Duluth Public Schools  
**Facility:** Laura MacArthur Elementary School  
**Category:** Deferred Maintenance

**Asset Name:** Laura MacArthur - Site  
**Asset Number:** 525c

<b>Requirement Name</b>	Site: Play Area Court	<b>Inspection Date</b>	08/01/2006
<b>Linked System</b>	Site Improvements	<b>Finish Date</b>	-
<b>Prime System</b>	Playing Fields	<b>Status</b>	Open
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Actual Cost</b>	0
<b>Inspector Name</b>	Inspec	<b>Total Estimated Cost:</b>	3,540
<b>Action Date</b>	08/01/2009	<b>Funding Type</b>	-
<b>Funding Year</b>	-	<b>Annual Energy/Ops Savings \$</b>	-
<b>Requirement Location</b>	Play Area Court		
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Deteriorated play area court.

**PHOTOS**

**ACTION DESCRIPTION**

Crack seal and resurface play area court.

**District:** Duluth Public Schools  
**Facility:** Laura MacArthur Elementary School  
**Category:** Deferred Maintenance

**Asset Name:** Laura MacArthur - Site  
**Asset Number:** 525c

<b>Requirement Name</b>	Site: Playground	<b>Inspection Date</b>	08/01/2006
<b>Linked System</b>	Site Improvements	<b>Finish Date</b>	-
<b>Prime System</b>	Playing Fields	<b>Status</b>	Open
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Actual Cost</b>	0
<b>Inspector Name</b>	Inspec	<b>Total Estimated Cost:</b>	47,200
<b>Action Date</b>	08/01/2009	<b>Funding Type</b>	-
<b>Funding Year</b>	-	<b>Annual Energy/Ops Savings \$</b>	-
<b>Requirement Location</b>	Playground at NE side of building		
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Drainage towards building.

**PHOTOS**

**ACTION DESCRIPTION**

Regrade; add storm water catch/piping.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Accessibility

<b>Requirement Name</b>	Aquatic Facilities: Code Issues	
<b>Linked System</b>	Aquatic Facilities	<b>Inspection Date</b> 11/05/2006
<b>Prime System</b>	Aquatic Facilities	<b>Finish Date</b> -
<b>Priority</b>	1- Currently Critical (Immediately)	<b>Status</b> Open
<b>Inspector Name</b>	USAquatics	<b>Actual Cost</b> 0
<b>Action Date</b>	11/05/2006	<b>Total Estimated Cost:</b> 12,331
<b>Funding Year</b>	-	<b>Funding Type</b> -
<b>Requirement Location</b>	Pool	<b>Annual Energy/Ops Savings \$</b> -
<b>Savings Description</b>	-	

**REQUIREMENT DESCRIPTION**

**ACCENT AT 5 FT. TRANSITION**

An accent is required where there is a transition to a steeper slope. The existing accent was painted on and has faded.

**ADA ACCESSIBILITY**

A means of access into the pool for those with disabilities must be installed.

**PHOTOS**



Aquatic Facilities: Code Issues

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**ACTION DESCRIPTION**

**ACCENT AT 5 FT. TRANSITION**

Add the required accent stripe.

**ADA ACCESSIBILITY**

*All Costs in USD.*

Add an ADA compliant lift.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Accessibility

<b>Requirement Name</b>	Equipment and Furnishings: Accessibility		
<b>Linked System</b>	Equipment and Furnishings	<b>Inspection Date</b>	11/12/2006
<b>Prime System</b>	Equipment and Furnishings	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	JQP Inc.	<b>Actual Cost</b>	0
<b>Action Date</b>	11/12/2009	<b>Total Estimated Cost:</b>	55,425
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Facility	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

This requirement includes accessibility issues related to high public use areas of the school, including auditoriums, stadiums, gymnasiums, ticket counters, and the main office. Items include: providing wheelchair viewing positions, providing access to the stage, providing an assistive listening system and lowering counters.

It also includes accessibility issues found in Specialty Areas (science labs, cooking labs, industrial arts areas, as well as the media center/library). Items include: providing accessible work stations in kitchens, providing accessible labs and lowering eyewashes.

**PHOTOS**



Equipment and Furnishings: Accessibility

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**ACTION DESCRIPTION**

Correct accessibility issues as required.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Accessibility

<b>Requirement Name</b>	Interior Construction: Accessibility		
<b>Linked System</b>	Interior Construction	<b>Inspection Date</b>	11/12/2006
<b>Prime System</b>	Interior Construction	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	JQP Inc.	<b>Actual Cost</b>	0
<b>Action Date</b>	11/12/2009	<b>Total Estimated Cost:</b>	58,392
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Interior	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

This requirement includes accessibility issues encountered while you move through the school. Items include: providing elevator or ramp, adding/modifying handrails (only if the level is not served by an elevator or other accessible route), widening doors, replacing door hardware, eliminating protruding hazards and all permanent room identification signage as well as directional signage (adding signs, replacing signs and relocating signs).

**PHOTOS**



Interior Construction: Accessibility

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**ACTION DESCRIPTION**

Make necessary modifications to correct accessibility issues as needed.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Accessibility

<b>Requirement Name</b>	Plumbing: Accessibility	<b>Inspection Date</b>	11/12/2006
<b>Linked System</b>	Plumbing	<b>Finish Date</b>	-
<b>Prime System</b>	Plumbing	<b>Status</b>	Open
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Actual Cost</b>	0
<b>Inspector Name</b>	JQP Inc.	<b>Total Estimated Cost:</b>	86,398
<b>Action Date</b>	11/12/2009	<b>Funding Type</b>	-
<b>Funding Year</b>	-	<b>Annual Energy/Ops Savings \$</b>	-
<b>Requirement Location</b>	Plumbing throughout		
<b>Savings Description</b>	-		

## REQUIREMENT DESCRIPTION

This requirement includes accessibility issues in toilet rooms, locker/shower rooms and drinking fountains. All requirements for upgrading a toilet or locker/shower room are included in this category, even if they are not plumbing (i.e. relocating stall partitions to provide 60 in. wide stall, relocating toilet paper dispenser or grab bars, etc.). Items include: replacing drinking fountains, raising/lowering toilets, installing grab bars, relocating toilet paper or towel dispensers, adding handheld shower wands, and providing 60 in. wide fully compliant toilet stalls.

Note: the actual cost to complete work in toilet rooms may be increased by a decision to do work beyond what is required for accessibility, such as re-tiling, replacing all fixtures, replacing all stall partitions, etc.

## PHOTOS



Plumbing: Accessibility

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## ACTION DESCRIPTION

Upgrades as needed to meet plumbing accessibility requirements.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Accessibility

<b>Requirement Name</b>	Site Improvements: Accessibility		
<b>Linked System</b>	Site Improvements	<b>Inspection Date</b>	11/12/2006
<b>Prime System</b>	Site Improvements	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	JQP Inc.	<b>Actual Cost</b>	0
<b>Action Date</b>	11/12/2009	<b>Total Estimated Cost:</b>	2,583
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Exterior	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

This requirement includes accessibility issues from the moment you are on school grounds until you get to the front door. Items include: adding and identifying accessible parking and adding or modifying accessible routes (sidewalks).

**PHOTOS**



Site Improvements: Accessibility

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**ACTION DESCRIPTION**

Correct exterior accessibility issues as required.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Air and Water Quality

<b>Requirement Name</b>	HVAC - Dehumidification Chiller and Piping Mains		
<b>Linked System</b>	Chilled Water Distribution	<b>Inspection Date</b>	06/28/2006
<b>Prime System</b>	Chilled Water Distribution	<b>Finish Date</b>	-
<b>Priority</b>	5- Recommendations/ Improvements	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	557,904
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Floors - Entire Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Laura MacArthur Elementary School has no means of dehumidification. Without de-humidification capabilities, these spaces cannot meet ASHRAE 55-1992 space design conditions.

**PHOTOS**



HVAC - Dehumidification Chiller and Piping Mains

**ACTION DESCRIPTION**

Addition of an air cooled chiller, pumps, and insulated chilled water pipe distribution system. Chiller to be screened for appearance purposes.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Air and Water Quality

<b>Requirement Name</b>	HVAC: Provide Negative Pressure in Crawlspace/Tunnels		
<b>Linked System</b>	Exhaust Ventilation Systems	<b>Inspection Date</b>	07/15/2006
<b>Prime System</b>	Exhaust Ventilation Systems	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	07/15/2007	<b>Total Estimated Cost:</b>	59,000
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	1914 and 1957 Crawlspace/Tunnels	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

The tunnels have dirt floors and if not under negative pressure can transfer odors to the floors above due to the pipe and duct penetrations. The tunnels are also present opportunity for mold growth.

**PHOTOS**



HVAC: Provide Negative Pressure in Crawlspace/Tunnels

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**ACTION DESCRIPTION**

Install exhaust fans and outdoor air intakes as required to ventilate tunnels, as well as maintain negative pressure.

Four Locations 1914 and 1952 Additions.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Air and Water Quality

<b>Requirement Name</b>	HVAC: Replace Classroom Unit Ventilators		
<b>Linked System</b>	Air Distribution Systems	<b>Inspection Date</b>	07/12/2006
<b>Prime System</b>	Air Distribution Systems	<b>Finish Date</b>	-
<b>Priority</b>	6- Does Not Meet Current Codes/Standards	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	1,276,288
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	1957 Addition	<b>Annual Energy/Ops Savings \$</b>	793
<b>Savings Description</b>	Energy savings will be generated by using heat exchangers to recover exhaust air energy in order to pre-condition make-up air. In addition, each classroom occupancy controls will reduce ventilation rates and control the lighting to save energy when rooms are not in use. Additional energy will be consumed to provide dehumidification during the cooling months.		

**REQUIREMENT DESCRIPTION**

The twenty one (21) classroom unit ventilators are 49 years old and have exceeded the recommended useful life. In addition, these classroom unit ventilators are typically not capable of meeting current ASHRAE indoor air quality standards. As part of this upgrade, the new mechanical system will incorporated heat recovery and classroom occupancy / CO2 controls to save energy.

In addition the old teachers lounge and surrounding area has no means of ventilation. This does not meet 2000 International Mechanical Code.

**PHOTOS**



HVAC: Replace Classroom Unit Ventilators

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**ACTION DESCRIPTION**

Remove existing classroom unit ventilators, patch wall to match existing. Replace with modern ventilation system with energy recovery with dehumidification, duct distribution system, and variable air volume boxes with hot water reheat coils and hot water finned tube radiation on exterior walls. Upgrade the controls systems to DDC and commission the new system.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Air and Water Quality

<b>Requirement Name</b>	Plumbing: Replace Galvanized Domestic Water Piping		
<b>Linked System</b>	Domestic Water Distribution	<b>Inspection Date</b>	06/28/2006
<b>Prime System</b>	Domestic Water Distribution	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	06/28/2007	<b>Total Estimated Cost:</b>	407,100
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Building Wide	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

The 49-92 year old domestic water distribution piping consists of galvanized piping which is connected together via lead based solder. Current flushing procedures have maintained lead levels at an acceptable level. As the piping continues to age, this may not be possible.

In addition, there is not enough plumbing re-circulation piping to provide hot water consistently to the classrooms.

**PHOTOS**



Plumbing: Replace Galvanized Domestic Water Piping

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**ACTION DESCRIPTION**

Remove all galvanized domestic water distribution piping as well as faucets and fixtures containing lead solder. Install insulated copper piping and fixtures/faucets where required. Wall cutting and patching would be required.

Addition of a plumbing re-circulation line.

*All Costs in USD.*



**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Air and Water Quality

<b>Requirement Name</b>	Service Tunnels: Floor Vapor Barrier		
<b>Linked System</b>	Other Site Construction	<b>Inspection Date</b>	08/01/2006
<b>Prime System</b>	Service and Pedestrian Tunnels	<b>Finish Date</b>	-
<b>Priority</b>	5- Recommendations/ Improvements	<b>Status</b>	Open
<b>Inspector Name</b>	Inspec	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	11,682
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Multiple Locations	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Exposed dirt areas contributing to air quality issues.

**PHOTOS**



Service Tunnels: Floor Vapor Barrier

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**ACTION DESCRIPTION**

Install poly vapor barrier over exposed earth areas.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Appearance

<b>Requirement Name</b>	Equipment and Furnishings: Replace "Modern Cabinets" 1914 Building		
<b>Linked System</b>	Equipment and Furnishings	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Equipment and Furnishings	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	114,578
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	G19, 133, 135, Entire Second Floor, 302, 307, 313, 315, 319, 321	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing cabinets were installed at various dates and generally is in poor condition.

**PHOTOS**



Equipment and Furnishings: Replace "Modern Cabinets" 1914 Building

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**ACTION DESCRIPTION**

Remove existing cabinets and replace with new. 500 L.F.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Appearance

<b>Requirement Name</b>	Floor Finishes: Repaint Concrete Floors		
<b>Linked System</b>	Floor Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Floor Finishes	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	27,209
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Concrete Floors in Lower Level	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing painted concrete floors are scraped up and need to be repainted.

**PHOTOS**



Floor Finishes: Repaint Concrete Floors

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**ACTION DESCRIPTION**

Strip/ prepare existing floor as required for new coating. Repaint.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Appearance

<b>Requirement Name</b>	Floor Finishes: Replace Smal Gym #104 and #137 Floor		
<b>Linked System</b>	Floor Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Floor Finishes	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	40,775
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Small Gym #104 and Small Gym # 137, 1957 Addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing vinyl asbestos tile is original and has been patched many times, needs to be replaced.

**PHOTOS**



Floor Finishes: Replace Smal Gym #104 and #137 Floor

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**ACTION DESCRIPTION**

Remove existing VAT, repair substrate, install new sheet vinyl flooring with game markings. 4154 SQFT

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Appearance

<b>Requirement Name</b>	Site Improvements: General Landscaping		
<b>Linked System</b>	Site Improvements	<b>Inspection Date</b>	10/03/2006
<b>Prime System</b>	Site Improvements	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Northern Lights Landscaping	<b>Actual Cost</b>	0
<b>Action Date</b>	10/03/2007	<b>Total Estimated Cost:</b>	6,753
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Property around facility	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

There are negative slope areas around the facility bringing drainage towards the facility instead of away from the facility. There are lawn areas around the immediate building requiring restoration. There are retaining walls in need of repair. Riprap stabilization required.

**PHOTOS**

**ACTION DESCRIPTION**

Correct negative slope around foundations by installing soil and sod. Restore lawn at stressed and/or non existing lawn areas around immediate building by installing soil and sod. Reconstruct retaining walls that are either collapsed or include wall material degradation. Riprap stabilization.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Appearance

<b>Requirement Name</b>	Wall Finishes: Paint Interior	<b>Inspection Date</b>	08/10/2006
<b>Linked System</b>	Wall Finishes	<b>Finish Date</b>	-
<b>Prime System</b>	Wall Finishes	<b>Status</b>	Open
<b>Priority</b>	4- Mid Term Needs (6-10 Yrs)	<b>Actual Cost</b>	0
<b>Inspector Name</b>	Fern, Bob	<b>Total Estimated Cost:</b>	230,646
<b>Action Date</b>	08/10/2012	<b>Funding Type</b>	-
<b>Funding Year</b>	-	<b>Annual Energy/Ops Savings \$</b>	-
<b>Requirement Location</b>	Entire Building		
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Interiors will require repainting.

**PHOTOS**



Wall Finishes: Paint Interior

-

**ACTION DESCRIPTION**

Prepare walls and repaint.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Asbestos

<b>Requirement Name</b>	Hazardous Components: Abatement	<b>Inspection Date</b>	07/01/2006
<b>Linked System</b>	Hazardous Components Abatement	<b>Finish Date</b>	-
<b>Prime System</b>	Hazardous Components Abatement	<b>Status</b>	Open
<b>Priority</b>	1- Currently Critical (Immediately)	<b>Actual Cost</b>	0
<b>Inspector Name</b>	Wormuth, Kevin	<b>Total Estimated Cost:</b>	203,007
<b>Action Date</b>	07/01/2006	<b>Funding Type</b>	-
<b>Funding Year</b>	-	<b>Annual Energy/Ops Savings \$</b>	-
<b>Requirement Location</b>	Entire Facility		
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

This facility was built when asbestos was a common component of many building materials. The majority of asbestos in this facility was part of the insulating materials. Some has been abated, but in some areas it is still present.

**PHOTOS**

**ACTION DESCRIPTION**

Abatement of asbestos containing materials throughout facility.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Beyond Rated Life

<b>Requirement Name</b>	Aquatic Facilities: Filtration System Upgrade		
<b>Linked System</b>	Aquatic Facilities	<b>Inspection Date</b>	11/05/2006
<b>Prime System</b>	Aquatic Facilities	<b>Finish Date</b>	-
<b>Priority</b>	5- Recommendations/ Improvements	<b>Status</b>	Open
<b>Inspector Name</b>	USAquatics	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	54,516
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Pool Mechanical	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

### REQUIREMENT DESCRIPTION

The existing filtration system is a diatomaceous earth (DE) filter. The DE filter is a waste media filter since you must continuously buy DE. Depending on the bather load, the filters are backwashed weekly. DE has been found to be a carcinogen by several testing agencies. Its handling characteristics are similar to asbestos. When wetted it can be handled safely, when it is a dry dust it can be inhaled into the lungs. There has been a trend nationally away from DE filters because of operational costs and health concerns. The filter is being backwashed down the sewer. In many jurisdictions, DE is considered a hazardous waste and must be separated from the water during the backwash process with the DE material being sent to the proper disposal sites. The DE system used requires dual pumps and a governor valve. Flooding is always a possibility and two pumps require twice the power of a single pump system.

### PHOTOS



Aquatic Facilities: Filtration System Upgrade

-

### ACTION DESCRIPTION

Install a high rate pressure sand filter system. Pressure sand filters are a permanent media filter, which are more efficient to operate than other types of filters. Backwashing the filters take approximately 10 minutes per filter as compared to several hours for the DE filter. When proper sizing methods are used and the correct type of filter is specified, filtration

*All Costs in USD.*

effectiveness comparable to DE can be achieved without the associated dangers. The filters are also non-metallic, so rusting will not be an issue. Since backwashing is a process of reversing flow in the filter, the only elements going to waste are pool water and organics.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

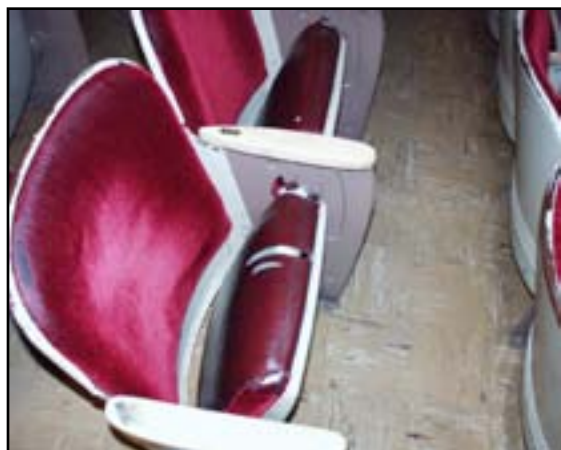
**Category:** Beyond Rated Life

<b>Requirement Name</b>	Equipment and Furnishings: Replace Auditorium Seating		
<b>Linked System</b>	Equipment and Furnishings	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Equipment and Furnishings	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2007	<b>Total Estimated Cost:</b>	307,154
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Auditorium 1914 Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing fabric and vinyl is very worn or torn. Frames require repainting. Due to parts being hard to get, replace all seats.

**PHOTOS**



Equipment and Furnishings: Replace Auditorium Seating

-

**ACTION DESCRIPTION**

Remove existing seats and replace with new. 660 Seats

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Beyond Rated Life

<b>Requirement Name</b>	Exterior Windows: Replace All Windows in 1957 Addition		
<b>Linked System</b>	Exterior Windows	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Exterior Windows	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2007	<b>Total Estimated Cost:</b>	597,924
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	1957 Addition	<b>Annual Energy/Ops Savings \$</b>	11386
<b>Savings Description</b>	Energy savings generated from improved window insulation values and reduced infiltration.		

**REQUIREMENT DESCRIPTION**

Existing aluminum windows are in poor condition.

**PHOTOS**



Exterior Windows: Replace All Windows in 1957 Addition

-

**ACTION DESCRIPTION**

Remove existing aluminum windows and replace with new. 5500 SQFT

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Beyond Rated Life

<b>Requirement Name</b>	HVAC: Heating System Conversion - Steam to Hot Water		
<b>Linked System</b>	Steam Distribution Systems	<b>Inspection Date</b>	06/28/2006
<b>Prime System</b>	Steam Distribution Systems	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	06/28/2009	<b>Total Estimated Cost:</b>	499,022
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Floors - Entire Building	<b>Annual Energy/Ops Savings \$</b>	11,948
<b>Savings Description</b>	Energy savings generated from converting from a steam system with old boilers to a how water system that includes condensing style boiler(s).		

**REQUIREMENT DESCRIPTION**

A majority of the steam system (49 - 92 years old) has exceeded the recommended useful life. Most of the steam system is a one pipe system which is difficult to control/maintain/service. A steam system requires substantially more maintenance than a modern hot water heating system due to steam traps, condensate pumps, and chemical treatment.

**PHOTOS**



HVAC: Heating System Conversion - Steam to Hot Water

**ACTION DESCRIPTION**

Install new high efficiency hot water condensing boilers and hot water piping system. Replace all steam terminal heating devices and coils with hot water devices and coils.

Budgeted costs of \$144,000 are avoided by converting the steam system to hot water.

*All Costs in USD.*

This is due to the terminal steam devices requiring custom covers to be installed to eliminate the burn hazard.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Beyond Rated Life

<b>Requirement Name</b>	HVAC: Pool Unit Replacement along with an Automatic Pool Cover		
<b>Linked System</b>	Aquatic Facilities	<b>Inspection Date</b>	07/18/2006
<b>Prime System</b>	Aquatic Facilities	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	07/18/2007	<b>Total Estimated Cost:</b>	354,000
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	1914 Building	<b>Annual Energy/Ops Savings \$</b>	5,182
<b>Savings Description</b>	Pool cover saving heat and evaporation losses from pool. The pool area also required less ventilation when the pool is covered which results in additional savings. A sensible heat exchanger recovers heat from exhaust to preheat air during the winter. Additional energy will be consumed during the cooling season when mechanical dehumidification is required.		

**REQUIREMENT DESCRIPTION**

The existing pool air handling unit is located above a ceiling access panel and is very difficult to service. This unit is 49 years old and has exceeded the recommended useful life.

**PHOTOS**



HVAC: Pool Unit Replacement along with an Automatic Pool Cover

-

**ACTION DESCRIPTION**

*All Costs in USD.*

Replace the pool air handling unit with a pool dehumidification unit. This will help maintain acceptable temperature and humidity. This is especially critical as the ceiling of the pool is the floor of the auditorium.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Beyond Rated Life

<b>Requirement Name</b>	HVAC: Replace Ventilation All Floors 1914 Building Classrooms and Offices		
<b>Linked System</b>	Air Distribution Systems	<b>Inspection Date</b>	06/28/2006
<b>Prime System</b>	Air Distribution Systems	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	06/28/2009	<b>Total Estimated Cost:</b>	2,941,386
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Floors - 1914 Building Classrooms and Offices	<b>Annual Energy/Ops Savings \$</b>	1,189
<b>Savings Description</b>	Energy savings will be generated by using heat exchangers to recover exhaust air energy in order to pre-condition make-up air. In addition, each classroom occupancy controls will reduce ventilation rates and control the lighting to save energy when rooms are not in use. Additional energy will be consumed to provide dehumidification during the cooling months.		

**REQUIREMENT DESCRIPTION**

The 92 year old ventilation system has exceeded the recommended useful life expectancy and currently poorly distributes ventilation air. As part of this upgrade, the new mechanical system will incorporated heat recovery and classroom occupancy / CO2 controls to save energy.

**PHOTOS**



HVAC: Replace Ventilation All Floors 1914 Building Classrooms and Offices

-

**ACTION DESCRIPTION**

*All Costs in USD.*

Replacement of the Existing Ventilation System with a Modern Ventilation System consisting of Air Handling Units with Energy Recovery, Duct Distribution System, and Variable Air Volume Boxes with Hot Water Reheat Coils and Hot Water Finned Tube Radiation.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Beyond Rated Life

<b>Requirement Name</b>	Interior Doors: Replace Folding Partition Between Kitchen & Cafeteria		
<b>Linked System</b>	Interior Doors	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Interior Doors	<b>Finish Date</b>	-
<b>Priority</b>	4- Mid Term Needs (6-10 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2012	<b>Total Estimated Cost:</b>	3,599
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Wall between kitchen and cafeteria, 1957 addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing folding partition is original and is in poor condition.

**PHOTOS**



Interior Doors Replace Folding Partition Between Kitchen Cafeteria

-

**ACTION DESCRIPTION**

Remove existing and replace with security roll up shutter and door. 100 SQFT

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Beyond Rated Life

<b>Requirement Name</b>	Lighting Equipment: Occupancy Sensors		
<b>Linked System</b>	Lighting Equipment	<b>Inspection Date</b>	09/19/2006
<b>Prime System</b>	Lighting Equipment	<b>Finish Date</b>	-
<b>Priority</b>	4- Mid Term Needs (6-10 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Ruud, Mark	<b>Actual Cost</b>	0
<b>Action Date</b>	09/19/2012	<b>Total Estimated Cost:</b>	16,809
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Classrooms	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

The existing classroom occupancy sensors are single technology sensors and will need replacement in the mid term future. Dual technology sensors offer improved performance.

**PHOTOS**

**ACTION DESCRIPTION**

Remove and replace existing classroom occupancy sensors with dual technology occupancy sensors.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Beyond Rated Life

<b>Requirement Name</b>	Plumbing: Replace Underground Sanitary Sewer Lines		
<b>Linked System</b>	Plumbing	<b>Inspection Date</b>	11/29/2006
<b>Prime System</b>	Plumbing	<b>Finish Date</b>	-
<b>Priority</b>	5- Recommendations/ Improvements	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	271,400
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Building Areas 35 Years or Older	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Underground sanitary sewer lines require replacement due to tree roots, pipe degradation, and pipe damage due to ground shifting over time.

**PHOTOS**

**ACTION DESCRIPTION**

Replace the underground sanitary sewer lines with new.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Beyond Rated Life

<b>Requirement Name</b>	Roof System: Replace Roof	<b>Inspection Date</b>	08/01/2006
<b>Linked System</b>	Roofing	<b>Finish Date</b>	-
<b>Prime System</b>	Roofing	<b>Status</b>	Open
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Actual Cost</b>	0
<b>Inspector Name</b>	Inspec	<b>Total Estimated Cost:</b>	793,456
<b>Action Date</b>	08/01/2007	<b>Funding Type</b>	-
<b>Funding Year</b>	-	<b>Annual Energy/Ops Savings \$</b>	1227
<b>Requirement Location</b>	Entire Building		
<b>Savings Description</b>	Energy savings generated from improved roof insulation.		

**REQUIREMENT DESCRIPTION**

Roof system beyond rated life. Includes roof Areas 1-5.

**PHOTOS**



Roof System: Replace Roof

**ACTION DESCRIPTION**

Replace EPDM roof. Sequence work with roof-level wall restoration.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Beyond Rated Life

<b>Requirement Name</b>	Site Furnishings: Playground Upgrade / Replacement		
<b>Linked System</b>	Site Furnishings	<b>Inspection Date</b>	10/03/2006
<b>Prime System</b>	Site Furnishings	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Earl F. Anderson	<b>Actual Cost</b>	0
<b>Action Date</b>	10/03/2007	<b>Total Estimated Cost:</b>	99,604
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Facility Grounds	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Playground equipment was installed in 1988 and 1995/6. The majority of the playground equipment (except the newer equipment) does not meet current safety and ADA requirements. The equipment is adequate for existing population.

**PHOTOS**



Site Furnishings: Playground Upgrade / Replacement

**ACTION DESCRIPTION**

Replace existing playground with new equipment to meet needs of enrollment. Replace surface material with district standard and replace edging as needed.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Building Code

<b>Requirement Name</b>	HVAC: Replace Dishwasher Exhaust Hood		
<b>Linked System</b>	Exhaust Ventilation Systems	<b>Inspection Date</b>	06/28/2006
<b>Prime System</b>	Exhaust Ventilation Systems	<b>Finish Date</b>	-
<b>Priority</b>	6- Does Not Meet Current Codes/Standards	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	17,700
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Kitchen 1957 Building Addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

The existing dishwasher has an existing exhaust hood but is not effective. It does not have an exhaust hood as required by the 2000 International Mechanical Code. Exhausting the dishwasher steam is critical in maintaining proper indoor air quality in the kitchen.

**PHOTOS**

**ACTION DESCRIPTION**

Demolish the existing dishwasher hood and fan system.

Add a Type II hood and dishwasher exhaust fan with the required externally insulated aluminum ductwork. Installation to comply with the 2000 International Mechanical Code.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Building Code

<b>Requirement Name</b>	HVAC: Replace Kitchen Grease Exhaust Hood / Add Kitchen Make Up Air		
<b>Linked System</b>	Exhaust Ventilation Systems	<b>Inspection Date</b>	07/12/2006
<b>Prime System</b>	Exhaust Ventilation Systems	<b>Finish Date</b>	-
<b>Priority</b>	6- Does Not Meet Current Codes/Standards	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	120,950
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Kitchen - 1957 Addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

The existing grease exhaust hood has been written up as a non compliant hood by the State Fire Marshall. This hood needs to be replaced with a code compliant grease exhaust hood and fan.

In addition, the kitchen does not have a dedicated make up air unit. Make up air for the kitchen hood is required by the 2000 International Mechanical Code.

**PHOTOS**



HVAC: Replace Kitchen Grease Exhaust Hood / Add Kitchen Make Up Air

-

**ACTION DESCRIPTION**

Replace the existing grease exhaust hood and fan and grease duct with 2000 International Mechanical Code compliant kitchen grease hood exhaust system.

Add a dedicated make up air unit with dehumidification.

*All Costs in USD.*



**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Building Code

<b>Requirement Name</b>	Interior Doors: Replace Classroom Doors 1914 Building		
<b>Linked System</b>	Interior Doors	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Interior Doors	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2007	<b>Total Estimated Cost:</b>	85,137
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire 1914 Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing classroom doors not glazed with safety glazing. Doors are original and are worn to the point of replacement.

**PHOTOS**



Interior Doors: Replace Classroom Doors 1914 Building

-

**ACTION DESCRIPTION**

Remove existing wood doors and replace with new doors and accessible hardware. 65 Doors

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Capacity

<b>Requirement Name</b>	Electrical Distribution: Insufficient Capacity		
<b>Linked System</b>	Electrical Service and Distribution	<b>Inspection Date</b>	09/13/2006
<b>Prime System</b>	Electrical Service and Distribution	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Crotteau, Paul	<b>Actual Cost</b>	0
<b>Action Date</b>	09/13/2009	<b>Total Estimated Cost:</b>	16,402
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Building Wide	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing Branch Panels are lacking capacity for additional circuits. Panels must be added to accommodate circuits needed for additional receptacles in classrooms

**PHOTOS**



Electrical Distribution: Insufficient Capacity

-

**ACTION DESCRIPTION**

Provide two new 100 amp feeders and panels to help carry the extra load of additional receptacles throughout the building.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Capacity

<b>Requirement Name</b>	HVAC: Add Cooling Capability to Computer Lab and IT Data Rooms		
<b>Linked System</b>	Cooling Generating Systems	<b>Inspection Date</b>	07/11/2006
<b>Prime System</b>	Cooling Generating Systems	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	07/11/2007	<b>Total Estimated Cost:</b>	169,566
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	IT Data Rooms Room 117 and Room 218	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

The Computer Lab and IT Data rooms get hot, which could cause technology equipment failure.

**PHOTOS**



HVAC: Add Cooling Capability to IT Data Rooms

-

**ACTION DESCRIPTION**

Provide a fan coils with a DX cooling coils and full economizer capability to utilize free cooling when outdoor conditional allow.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Capacity

<b>Requirement Name</b>	Wiring Devices: Insufficient Receptacles		
<b>Linked System</b>	Branch Wiring Devices	<b>Inspection Date</b>	09/13/2006
<b>Prime System</b>	Branch Wiring Devices	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Crotteau, Paul	<b>Actual Cost</b>	0
<b>Action Date</b>	09/13/2009	<b>Total Estimated Cost:</b>	96,170
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Building Wide	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

In general, classrooms have an insufficient number of receptacles. Computers and other electronics are plugged into power strips due to the lack of receptacles. This limits future addition of electronic devices and presents a fire hazard.

**PHOTOS**



Wiring Devices: Insufficient Receptacles

-

**ACTION DESCRIPTION**

Provide six additional 20 amp receptacle per classroom and associated branch wiring. Upgrade will first require additional branch panel boards.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Aquatic Facilities: Deferred Maintenance Items		
<b>Linked System</b>	Aquatic Facilities	<b>Inspection Date</b>	11/05/2006
<b>Prime System</b>	Aquatic Facilities	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	USAquatics	<b>Actual Cost</b>	0
<b>Action Date</b>	11/05/2007	<b>Total Estimated Cost:</b>	55,035
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Pool	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

**POOL PIPING AND VALVES (iron bodied)**

A lot of the piping and valves are still the original cast iron which has a lot of scale build-up and corrosion present. Repiping would include the necessary valves, flowmeter and thermometer.

**INLETS SCALED; PRESSURE UN-EVEN**

Like the main drains and gutter drop outs, the inlets are cast iron / galvanized pipe and either corrode or scale shut. Long term maintenance should include replacement of the inlets.

The inlet grates (by Josam) are no longer made and the grates cannot be replaced. The inlet fittings should be replaced with a different model to facilitate easier repair and replacement in the future. Inlets are required to be adjustable

**TILE GROUT**

The pool tile must be re-grouted in order to preclude the delaminating of the tile from the pool shell.

**CLOGGED SANITARY WASTE**

Years of diatomaceous earth (DE) going down the drain clog the drain. DE deposits turn hard in the waste lines. The piping should be inspected.

**PHOTOS**



Aquatic Facilities: Deferred Maintenance Items

-

**ACTION DESCRIPTION**

Replace piping and valves. Repiping would include the necessary valves, flowmeter and thermometer. Complete inlet pipe loop.

Replace inlet fittings with adjustable eyeball fittings. Replace piping through the pool wall. Re-grout pool. Clear drain lines.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Ceiling Finishes: Replace Auditorium Ceiling		
<b>Linked System</b>	Ceiling Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Ceiling Finishes	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2007	<b>Total Estimated Cost:</b>	59,231
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Auditorium 1914 Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing ceiling is water damaged or has missing tiles.

**PHOTOS**



Ceiling Finishes: Replace Auditorium Ceiling

-

**ACTION DESCRIPTION**

Remove existing ceiling tile furr ceiling and install new 12x12 ceiling tile. 3672 SQFT

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Ceiling Finishes: Replace Cafeteria Ceilings		
<b>Linked System</b>	Ceiling Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Ceiling Finishes	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	15,163
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Cafeteria, 1957 Addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing ceiling is damaged with missing tiles.

**PHOTOS**



Ceiling Finishes: Replace Cafeteria Ceilings

-

**ACTION DESCRIPTION**

Remove existing ceiling tile and replace with new suspended acoustical board ceiling. 3300 SQFT

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Ceiling Finishes: Replace Ceiling Above Pool		
<b>Linked System</b>	Ceiling Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Ceiling Finishes	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2007	<b>Total Estimated Cost:</b>	99,309
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Pool, 1914 Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing ceiling is in poor condition, with grid rusting.

**PHOTOS**



Ceiling Finishes: Replace Ceiling Above Pool

-

**ACTION DESCRIPTION**

Remove existing suspended metal panel ceiling. Replace hanging wires and grid with non-corrosive system. 4735 SQFT

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Ceiling Finishes: Replace Small Gym #104 Ceiling		
<b>Linked System</b>	Ceiling Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Ceiling Finishes	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	15,812
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Small Gym #104, 1957 Addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing ceiling is showing its age and should be replaced, tiles missing at some locations.

**PHOTOS**



Ceiling Finishes: Replace Small Gym #104 Ceiling

-

**ACTION DESCRIPTION**

Remove existing ceiling tile and replace with new 12x12 tile. 2200 SQFT

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Ceing Finishes: Install New Suspended Acoustical Board Ceiling		
<b>Linked System</b>	Ceiling Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Ceiling Finishes	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	247,800
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Classrooms 1914 Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing ceiling tiles are water stained, damaged, or missing. Suspended acoustical ceilings are also poor.

**PHOTOS**



Ceig Finishes: Install New Suspended Acoustical Board Ceiling

-

**ACTION DESCRIPTION**

Install new 2X2 suspended Acoustical Board Ceiling throughout. Replace tile in existing locations. 42000 SQFT

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Equipment and Furnishings: Replace Lockers		
<b>Linked System</b>	Equipment and Furnishings	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Equipment and Furnishings	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	60,888
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Pool Locker Rooms, Corridors 1914 Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing lockers are in poor condition and require replacement, pool lockers are very rusted.

**PHOTOS**



Equipment and Furnishings: Replace Lockers

-

**ACTION DESCRIPTION**

Remove existing lockers and replace with new lockers in pool shower rooms to be plastic. 130 Lockers

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Equipment: Replace Classroom Cabinets		
<b>Linked System</b>	Equipment and Furnishings	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Equipment and Furnishings	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	97,439
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Classrooms 1957 Addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing cabinets and countertops are various vintages and generally are poor condition, and beyond repair and refinishing.

**PHOTOS**



Equipment: Replace Classroom Cabinets

-

**ACTION DESCRIPTION**

Remove existing cabinets and replace with new. 425 L.F.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Exterior Doors: Replace Select Hollow Metal Doors		
<b>Linked System</b>	Exterior Doors	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Exterior Doors	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2007	<b>Total Estimated Cost:</b>	28,025
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	East Entrance 1957 Addition, Northeast Entrance 1957 Addition, Northwest Entrance 1957 Addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing hollow metal doors/frames rusted.

**PHOTOS**



Exterior Doors: Replace Select Hollow Metal Doors

-

**ACTION DESCRIPTION**

Remove existing hollow metal doors and frames and replace with new aluminum entrance system. 7 Doors

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Exterior Walls: Wall Restoration		
<b>Linked System</b>	Exterior Walls	<b>Inspection Date</b>	08/01/2006
<b>Prime System</b>	Exterior Walls	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Inspec	<b>Actual Cost</b>	0
<b>Action Date</b>	08/01/2007	<b>Total Estimated Cost:</b>	853,140
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Deteriorated roof-level and grade-level walls and chimney for entire building. Efflorescence is located on wall above roof Area 5.

**PHOTOS**



Exterior Walls: Wall Restoration

-

**ACTION DESCRIPTION**

Tuck pointing, spot brick replacement, spot terra cotta sill replacement, replace and flash lintels, joint sealant replacement, and misc. items. Sequence work with reroofing of Areas 1-6, 9, and 11.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Exterior Windows: Replace All Window Coverings		
<b>Linked System</b>	Exterior Windows	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Exterior Windows	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	45,680
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing window coverings are all in poor condition and need to be replaced.

**PHOTOS**



Exterior Windows: Replace All Window Coverings

-

**ACTION DESCRIPTION**

Remove existing window coverings and brackets, install new. 4464 SQFT ( not including 1957 addition.)

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Fittings: Replace Toilet Partitions 11 Locations		
<b>Linked System</b>	Fittings	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Fittings	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	10,679
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Boys and Girls Toilet Rooms including Unisex, Entire Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing partitions are worn beyond repair.

**PHOTOS**



Fittings: Replace Toilet Partitions 11 Locations

-

**ACTION DESCRIPTION**

Remove existing partitions and replace with new plastic partitions. 11 Stalls

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Floor Finishes: Refinish All Wood Floors		
<b>Linked System</b>	Floor Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Floor Finishes	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	137,607
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Wood Floors 1914 Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing wood floors are worn and scraped, require refinishing.

**PHOTOS**



Floor Finishes: Refinish All Wood Floors

-

**ACTION DESCRIPTION**

Strip, Sand, Repair, and Refinish as required.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Floor Finishes: Replace All Carpet		
<b>Linked System</b>	Floor Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Floor Finishes	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	133,568
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing carpet is in either poor condition (worn/rippled) or very old.

**PHOTOS**



Floor Finishes: Replace All Carpet

-

**ACTION DESCRIPTION**

Remove existing carpet and replace with new.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Floor Finishes: Replace Gymnasium Floor		
<b>Linked System</b>	Floor Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Floor Finishes	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2007	<b>Total Estimated Cost:</b>	183,900
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Gymnasium, Ground Floor	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing gymnasium wood floor is in poor condition and has had multiple repairs and screws driven in to hold loose section.

**PHOTOS**



Floor Finishes: Refinish Gymnasium Floor

-

**ACTION DESCRIPTION**

Remove existing wood floor, waterproof slab, install topping slab, and cover with new resilient floor covering.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Floor Finishes: Replace Resilient Floor Finishes		
<b>Linked System</b>	Floor Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Floor Finishes	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2007	<b>Total Estimated Cost:</b>	16,368
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Toilet Near G21, Kitchen	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing sheet vinyl torn in toilet rooms, vinyl asbestos tile in kitchen has been patched repeatedly, does not comply with health department regulations.

**PHOTOS**



Floor Finishes: Replace Resilient Floor Finishes

-

**ACTION DESCRIPTION**

Remove existing floor finish, repair substrate, install new quarry tile floor.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	HVAC: Ductwork Cleaning		
<b>Linked System</b>	Air Distribution Systems	<b>Inspection Date</b>	11/29/2006
<b>Prime System</b>	Air Distribution Systems	<b>Finish Date</b>	-
<b>Priority</b>	4- Mid Term Needs (6-10 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	11/29/2012	<b>Total Estimated Cost:</b>	5,900
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Building Wide	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Clean the duct systems that are not replaced by the indoor air quality upgrade.

**PHOTOS**

**ACTION DESCRIPTION**

Clean ductwork that is not replaced due to indoor air quality upgrades.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Interior Doors: Replace Hardware and Refinish Doors		
<b>Linked System</b>	Interior Doors	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Interior Doors	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	17,995
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Interior Doors 1957 Addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing doors require knobs to be changed to lever handle, doors need to be refinished.

**PHOTOS**



Interior Doors: Replace Hardware and Refinish Doors

-

**ACTION DESCRIPTION**

Remove knob hardware and replace with lever type, refinish doors

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Deferred Maintenance

<b>Requirement Name</b>	Partitions: Repair Water Damaged Walls		
<b>Linked System</b>	Partitions	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Partitions	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2007	<b>Total Estimated Cost:</b>	13,098
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Second Floor Work Room, Storage Room off of classroom 316, all in 1914 building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing roof drain piping leaked and damage walls, repair of pipe increased repair area of wall.

**PHOTOS**



Partitions: Repair Water Damaged Walls

-

**ACTION DESCRIPTION**

Infill openings in wall, patch plaster

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Energy and Operational Efficiency

<b>Requirement Name</b>	Aquatic Facilities: Operational Upgrades		
<b>Linked System</b>	Aquatic Facilities	<b>Inspection Date</b>	11/05/2006
<b>Prime System</b>	Aquatic Facilities	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	USAquatics	<b>Actual Cost</b>	0
<b>Action Date</b>	11/05/2007	<b>Total Estimated Cost:</b>	9,865
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Pool	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

## REQUIREMENT DESCRIPTION

### pH ADJUSTMENT

The Duluth school pools are unique in their chemical feed needs. Limited adjustment is required for pH control. This is unusual in that the use of gas chlorine (pH = 1) drives the pool water pH lower, generally requiring the use of caustic soda or soda ash to maintain the required pH. Due to this limited adjustment, the pool pH is maintained manually. Despite the limited adjustment necessary, it is still necessary. The installation of automatic pH adjustment chemicals will reduce the potential for peak and valley pH changes which can reduce the chlorine effectiveness.

### UPGRADE CHEMICAL CONTROLLER

The chemical controller should include a memory with down load and modem capabilities. These features give the ability to store the history of the pool chemistry to protect the owner in case of liability issues. It allows trouble shooting and is controllable from remote locations via the modem for management of the facility or assistance from outside parties who can download the pools data.

## PHOTOS



Aquatic Facilities: Operational Upgrades

-

**ACTION DESCRIPTION**

Add pH feed equipment.

Install an updated automatic chemical controller.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Energy and Operational Efficiency

<b>Requirement Name</b>	Aquatic Facilities: Pool Pump VFD		
<b>Linked System</b>	Aquatic Facilities	<b>Inspection Date</b>	09/11/2006
<b>Prime System</b>	Aquatic Facilities	<b>Finish Date</b>	-
<b>Priority</b>	1- Currently Critical (Immediately)	<b>Status</b>	Open
<b>Inspector Name</b>	Ruud, Mark	<b>Actual Cost</b>	0
<b>Action Date</b>	09/11/2006	<b>Total Estimated Cost:</b>	2,360
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Pool Mechanical	<b>Annual Energy/Ops Savings \$</b>	110
<b>Savings Description</b>	Pool pump saving from VFD controls to reduce flow during low filter head conditions or elimination of balancing valves.		

**REQUIREMENT DESCRIPTION**

Install VFD on pool pump and control to maintain constant flow.

**PHOTOS**

**ACTION DESCRIPTION**

-

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Energy and Operational Efficiency

<b>Requirement Name</b>	Controls: VendingMiser Vending Machine Controls		
<b>Linked System</b>	Controls and Instrumentation	<b>Inspection Date</b>	10/04/2006
<b>Prime System</b>	Controls and Instrumentation	<b>Finish Date</b>	-
<b>Priority</b>	1- Currently Critical (Immediately)	<b>Status</b>	Open
<b>Inspector Name</b>	Ruud, Mark	<b>Actual Cost</b>	0
<b>Action Date</b>	10/04/2006	<b>Total Estimated Cost:</b>	826
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Vending Machines	<b>Annual Energy/Ops Savings \$</b>	86
<b>Savings Description</b>	VendingMiser controls cycle power to the vending machine during unoccupied times to save energy.		

**REQUIREMENT DESCRIPTION**

Install VendingMiser controls on vending machines.

**PHOTOS**

**ACTION DESCRIPTION**

-

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Energy and Operational Efficiency

<b>Requirement Name</b>	HVAC: Remote Condenser Heat Removal		
<b>Linked System</b>	Exhaust Ventilation Systems	<b>Inspection Date</b>	07/12/2006
<b>Prime System</b>	Exhaust Ventilation Systems	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	07/12/2007	<b>Total Estimated Cost:</b>	4,484
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Kitchen - 1957 Addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

The cooler and freezer condensers are located in the adjoining storage room. This overheats the space.

**PHOTOS**



HVAC: Remote Condenser Heat Removal

-

**ACTION DESCRIPTION**

Add an roof exhaust fan above the condensers for summer operation. Add a side wall exhaust fan to transfer condenser heat to the adjoining crawlspace for winter operation.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Energy and Operational Efficiency

<b>Requirement Name</b>	HVAC: Steam System Steam Trap Upgrades		
<b>Linked System</b>	Steam Distribution Systems	<b>Inspection Date</b>	09/07/2006
<b>Prime System</b>	Steam Distribution Systems	<b>Finish Date</b>	-
<b>Priority</b>	1- Currently Critical (Immediately)	<b>Status</b>	Open
<b>Inspector Name</b>	Ruud, Mark	<b>Actual Cost</b>	0
<b>Action Date</b>	09/07/2006	<b>Total Estimated Cost:</b>	27,217
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Facility Wide	<b>Annual Energy/Ops Savings \$</b>	3,196
<b>Savings Description</b>	Heating savings attributed to leaking steam traps that result in the overheating of tunnel areas or steam venting in condensate receiver tanks.		

**REQUIREMENT DESCRIPTION**

- 1) Complete survey all steam traps system wide to locate failed traps.
- 2) Replace or repair of failed traps depending on trap age, condition, and availability of replacement part kits.

**PHOTOS**

**ACTION DESCRIPTION**

-

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Energy and Operational Efficiency

<b>Requirement Name</b>	Lighting: Lighting Retrofit		
<b>Linked System</b>	Lighting Equipment	<b>Inspection Date</b>	09/20/2006
<b>Prime System</b>	Lighting Equipment	<b>Finish Date</b>	-
<b>Priority</b>	1- Currently Critical (Immediately)	<b>Status</b>	Open
<b>Inspector Name</b>	Ruud, Mark	<b>Actual Cost</b>	0
<b>Action Date</b>	09/20/2006	<b>Total Estimated Cost:</b>	253,203
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Facility	<b>Annual Energy/Ops Savings \$</b>	8,502
<b>Savings Description</b>	Energy savings generated through more efficient lighting technology.		

**REQUIREMENT DESCRIPTION**

Lighting project consists of the following:

- 1) Retrofit/Replace 34w T12 fixtures with 25w T8 lighting
- 2) Replace old 32w T8 Egg Crate Style fixtures with new 25w T8 strip fixtures
- 3) Replace HID lighting with T8 lighting fixtures
- 4) Replace Incand. lighting with Fluorescent
- 5) Upgrade exit signs with LED technology
- 6) Gym Occupancy Sensors

**PHOTOS**

**ACTION DESCRIPTION**

-

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Energy and Operational Efficiency

<b>Requirement Name</b>	Plumbing: Add Domestic Water Heat Exchanger		
<b>Linked System</b>	Plumbing	<b>Inspection Date</b>	07/12/2006
<b>Prime System</b>	Plumbing	<b>Finish Date</b>	-
<b>Priority</b>	5- Recommendations/ Improvements	<b>Status</b>	Open
<b>Inspector Name</b>	Schumacher, Russ	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	35,046
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Boiler Room - 1952 Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Provide a Domestic Hot Water Heat Exchanger. This will allow for an interruptible natural gas rate.

**PHOTOS**



Plumbing: Add Domestic Water Heat Exchanger

-

**ACTION DESCRIPTION**

Provide a new domestic hot water heat exchanger and all required piping and controls.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Energy and Operational Efficiency

<b>Requirement Name</b>	Plumbing: Water Conservation Upgrades		
<b>Linked System</b>	Plumbing Fixtures	<b>Inspection Date</b>	09/21/2006
<b>Prime System</b>	Plumbing Fixtures	<b>Finish Date</b>	-
<b>Priority</b>	1- Currently Critical (Immediately)	<b>Status</b>	Open
<b>Inspector Name</b>	Ruud, Mark	<b>Actual Cost</b>	0
<b>Action Date</b>	09/21/2006	<b>Total Estimated Cost:</b>	23,880
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Facility	<b>Annual Energy/Ops Savings \$</b>	7166
<b>Savings Description</b>	Reduce water and sewer usage using new low flow devices. Savings include constant flow urinals. Constant flow urinal savings \$6,307, other improvements savings \$860.		

**REQUIREMENT DESCRIPTION**

Replace / Retrofit standard flow flush valves and faucets with low flow devices.

**PHOTOS**

**ACTION DESCRIPTION**

-

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Life Safety

<b>Requirement Name</b>	Elevators and Lifts: Elevator Repair		
<b>Linked System</b>	Elevators and Lifts	<b>Inspection Date</b>	08/28/2006
<b>Prime System</b>	Elevators and Lifts	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Schindler Elevator Corp.	<b>Actual Cost</b>	0
<b>Action Date</b>	08/28/2007	<b>Total Estimated Cost:</b>	19,210
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	1994 Elevator Addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Work required falls into twocategories: Life Safety Issues and Product Upgrades.

**PHOTOS**

**ACTION DESCRIPTION**

Upgrade elevators for life safety issues and product upgrades.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Life Safety

<b>Requirement Name</b>	Fittings: Replace Auditorium Stage Curtains		
<b>Linked System</b>	Fittings	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Fittings	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2007	<b>Total Estimated Cost:</b>	121,068
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Auditorium Stage, 1914 Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing curtains have been cited as non-compliant by state fire marshall.

**PHOTOS**

**ACTION DESCRIPTION**

Remove and replace stage curtains. 2800 SQFT

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Life Safety

<b>Requirement Name</b>	Lighting Equipment: Exterior Lighting		
<b>Linked System</b>	Lighting Equipment	<b>Inspection Date</b>	09/19/2006
<b>Prime System</b>	Lighting Equipment	<b>Finish Date</b>	-
<b>Priority</b>	1- Currently Critical (Immediately)	<b>Status</b>	Open
<b>Inspector Name</b>	Ruud, Mark	<b>Actual Cost</b>	0
<b>Action Date</b>	09/19/2006	<b>Total Estimated Cost:</b>	15,316
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Exterior	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

The existing exterior lighting for this facility is getting old and the light levels and coverage for adequate safety is a concern.

**PHOTOS**

**ACTION DESCRIPTION**

Replace and add exterior fixtures as needed to improve light levels and coverage.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Life Safety

<b>Requirement Name</b>	Superstructure: Construct Code Required Storage Room For Lawn Maintenance and Snow Removal Equipment		
<b>Linked System</b>	Superstructure	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Superstructure	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2007	<b>Total Estimated Cost:</b>	9,169
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing equipment is not stored in an appropriate rated room.

**PHOTOS**

**ACTION DESCRIPTION**

Construct masonry storage room with doors to exterior.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Occupant Security

<b>Requirement Name</b>	Communication and Security: Access Control		
<b>Linked System</b>	Communications and Security	<b>Inspection Date</b>	09/19/2006
<b>Prime System</b>	Security and Detection Systems	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Crotteau, Paul	<b>Actual Cost</b>	0
<b>Action Date</b>	09/19/2009	<b>Total Estimated Cost:</b>	23,600
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Building Wide	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Doors need ability to be locked down with access allowed only to authorized people. Also doors without card readers should be monitored for unauthorized access.

**PHOTOS**



Communication and Security: Access Control

-

**ACTION DESCRIPTION**

Install 6 proximity card readers at main entry doors for both public and personal  
And add magnetic door contacts to all other exterior doors on a alarm system.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Occupant Security

<b>Requirement Name</b>	Communications and Security: CCTV		
<b>Linked System</b>	Communications and Security	<b>Inspection Date</b>	11/30/2006
<b>Prime System</b>	Communications and Security	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Crotteau, Paul	<b>Actual Cost</b>	0
<b>Action Date</b>	11/30/2007	<b>Total Estimated Cost:</b>	76,881
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Building Wide	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

There are currently no cameras located in the school. Cameras would add an increased security throughout the school which is becoming more critical.

**PHOTOS**

**ACTION DESCRIPTION**

Provide cameras throughout school. Camera locations provided by ISD 709.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Occupant Security

<b>Requirement Name</b>	Fire Alarm Systems: Outdated System		
<b>Linked System</b>	Fire Alarm Systems	<b>Inspection Date</b>	09/19/2006
<b>Prime System</b>	Fire Alarm Systems	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Crotteau, Paul	<b>Actual Cost</b>	0
<b>Action Date</b>	09/19/2009	<b>Total Estimated Cost:</b>	176,528
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Building Wide	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Fire alarm systems are old analog system. System is prone to malfunctions and is very hard to identify exact area of alarm. It is also difficult to troubleshoot and find malfunctions.

**PHOTOS**



Fire Alarm Systems: Outdated System

-

**ACTION DESCRIPTION**

Replace fire system with a fully addressable fire system.  
This will allow for quick response to exact alarm device  
And allow for better maintenance and safety

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Communication and Security: Cabling Upgrade		
<b>Linked System</b>	Communications and Security	<b>Inspection Date</b>	08/15/2006
<b>Prime System</b>	Local Area Networks	<b>Finish Date</b>	-
<b>Priority</b>	5- Recommendations/ Improvements	<b>Status</b>	Open
<b>Inspector Name</b>	The Westlund Group	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	220,660
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Facility	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing building has older categories of cabling.

**PHOTOS**



Communication and Security: Cabling Upgrade

-

**ACTION DESCRIPTION**

Replace old and mixed telephone/data cabling with up to date category 6 or 6A. Add basic wireless coverage. Add high bandwidth Fiber Optic Cabling between wiring closets. Standardize quantity of phone and data in classroom and offices.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Communication and Security: Clock System		
<b>Linked System</b>	Communications and Security	<b>Inspection Date</b>	09/19/2006
<b>Prime System</b>	Clock and Program Systems	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Crotteau, Paul	<b>Actual Cost</b>	0
<b>Action Date</b>	09/19/2009	<b>Total Estimated Cost:</b>	25,960
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Building Wide	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Master clock systems no longer keep clocks in time. Most are only used for running the bells. Atomic clocks may not receive a signal through the brick buildings. Many clocks do not work at all.

**PHOTOS**



Communication and Security: Clock System

-

**ACTION DESCRIPTION**

Install new wireless master clock system. The main clock receives the GPS signal for exact time and then sends signal to other clocks in facility. This will allow for accurate time and less tardiness between classes.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Communication and Security: Public Address and Sound System		
<b>Linked System</b>	Communications and Security	<b>Inspection Date</b>	09/19/2006
<b>Prime System</b>	Intercommunication and Paging System	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Crotteau, Paul	<b>Actual Cost</b>	0
<b>Action Date</b>	09/19/2009	<b>Total Estimated Cost:</b>	19,588
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Building Wide	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

PA system is 25+ years old but is still functional.

There are no speakers located in hallways or commons area

**PHOTOS**



Communication and Security: Public Address and Sound System

**ACTION DESCRIPTION**

Update paging head end with new system and amplifier

And install speakers where needed.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Communication and Security: Telephone System Upgrade		
<b>Linked System</b>	Communications and Security	<b>Inspection Date</b>	08/15/2006
<b>Prime System</b>	Telephone Systems	<b>Finish Date</b>	-
<b>Priority</b>	1- Currently Critical (Immediately)	<b>Status</b>	Open
<b>Inspector Name</b>	The Westlund Group	<b>Actual Cost</b>	0
<b>Action Date</b>	08/15/2006	<b>Total Estimated Cost:</b>	5,841
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Facility	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

The telephone system should be updated to the new District standard of CISCO VOIP. The telephone system should include port for paging/intercom system. The Paging/Intercom system should be modified to allow access from the new telephone system.

**PHOTOS**

**ACTION DESCRIPTION**

Install new CISCO telephone system. Add paging interface. Remove old telephone system.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Communication and Security: Video/TV Distribution Upgrade		
<b>Linked System</b>	Communications and Security	<b>Inspection Date</b>	08/15/2006
<b>Prime System</b>	Television Systems	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	The Westlund Group	<b>Actual Cost</b>	0
<b>Action Date</b>	08/15/2009	<b>Total Estimated Cost:</b>	46,728
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Facility	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Analog Broadcast TV Signals are required by the FCC to be turned off in the Spring of 2009. Site utilizes satellite signal provided by Charter Cable.

**PHOTOS**

**ACTION DESCRIPTION**

Install new TV Distribution System capable of digital signals in all classrooms and administrative areas as required. Include additional channels.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Communications and Security: Sound Systems, Auditorium Control Booth Upgrades		
<b>Linked System</b>	Communications and Security	<b>Inspection Date</b>	08/15/2006
<b>Prime System</b>	Classroom Sound Systems	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	The Westlund Group	<b>Actual Cost</b>	0
<b>Action Date</b>	08/15/2007	<b>Total Estimated Cost:</b>	382,910
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Facility	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Not all Classrooms have Audio Enhancement. The Gymnasium Sound System and Auditorium Sound System are both adequate. The Auditorium control booth and components (video projection) are in need of upgrades.

**PHOTOS**

**ACTION DESCRIPTION**

- Add audio enhancement systems to remaining classrooms.
- Upgrade Auditorium sound, video/projection (control booth) systems.
- Replace Gymnasium sound system.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Controls and Instrumentation: BAS and Controls Upgrade		
<b>Linked System</b>	Controls and Instrumentation	<b>Inspection Date</b>	07/18/2006
<b>Prime System</b>	Building Automation Systems	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Schmidt, Brian	<b>Actual Cost</b>	0
<b>Action Date</b>	07/18/2007	<b>Total Estimated Cost:</b>	194,700
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire building	<b>Annual Energy/Ops Savings \$</b>	4,205
<b>Savings Description</b>	Energy saving through optimization and repairs of existing control system.		

## REQUIREMENT DESCRIPTION

Upgrade existing, outdated BAS to new Web-based BAS and tie to new District-wide BAS network. This will allow for central monitoring and control of all buildings from the Facilities Management building.

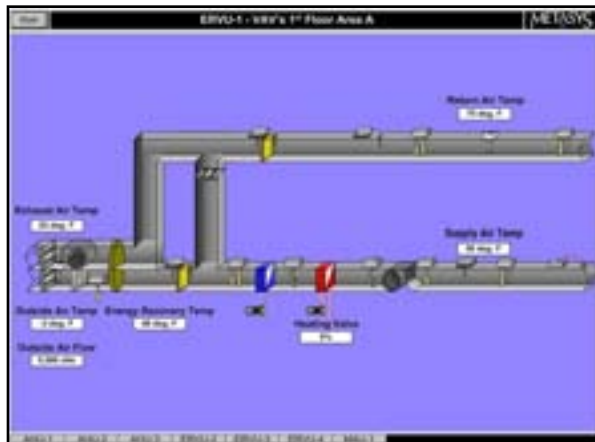
Upgrade existing pneumatic controls (old technology) to new Direct Digital controls.

Upgrade/replace existing temperature control valves, dampers, and actuators. The majority are beyond rated life and many are disconnected and not functioning, thus not operating as energy efficiently as possible.

Replace existing temperature control air compressor and air dryer with new and repair control air line leaks. This will improve the energy efficiency of the existing control system.

The existing controls shall be recommissioned to verify proper sequence of operation and optimize energy efficiency. Additional control and monitoring points shall also be added to the BAS system to optimize HVAC system performance.

## PHOTOS



Controls and Instrumentation: BAS and Controls Upgrade

All Costs in USD.

**ACTION DESCRIPTION**

Upgrade existing BAS to new web based to tie to District-wide BAS network. Add additional monitoring and control points to optimize BAS system.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Emergency Power Distribution: Generator Backup		
<b>Linked System</b>	Emergency Light and Power Systems	<b>Inspection Date</b>	09/19/2006
<b>Prime System</b>	Emergency Light and Power Systems	<b>Finish Date</b>	-
<b>Priority</b>	2- Potentially Critical (1-2 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Crotteau, Paul	<b>Actual Cost</b>	0
<b>Action Date</b>	09/19/2007	<b>Total Estimated Cost:</b>	105,020
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Exterior near Electrical Room	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

School currently has no backup power system to be used during a power failure. To keep students in school during power outage sufficient lighting must be maintained along with necessary life safety systems.

**PHOTOS**



Emergency Power Distribution: Generator Backup

-

**ACTION DESCRIPTION**

Install transfer switch and generator to feed distribution system during a power outage. Generator will be sized to handle the full building demand.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Equipment and Furnishings: Replace Computer Workstations		
<b>Linked System</b>	Equipment and Furnishings	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Equipment and Furnishings	<b>Finish Date</b>	-
<b>Priority</b>	5- Recommendations/ Improvements	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	26,196
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Classroom G1, 1957 Addition, Classroom # 302, 1914 Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing computer workstations these locations are of low quality. Replace to district standards.

**PHOTOS**



Equipment and Furnishings: Replace Computer Workstations

-

**ACTION DESCRIPTION**

Remove existing and replace with new. 19 Stations

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

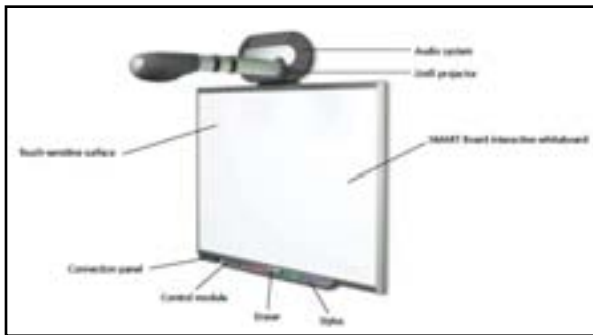
**Category:** Upgrades

<b>Requirement Name</b>	Equipment and Furnishings: Visual Systems (Smart Boards)		
<b>Linked System</b>	Equipment and Furnishings	<b>Inspection Date</b>	08/15/2006
<b>Prime System</b>	Audio-visual Equipment	<b>Finish Date</b>	-
<b>Priority</b>	5- Recommendations/ Improvements	<b>Status</b>	Open
<b>Inspector Name</b>	The Westlund Group	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	661,980
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Facility	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Site has no Smart Boards installed. Three Smart Boards are on order.

**PHOTOS**



Equipment and Furnishings: Visual Systems (Smart Boards)

-

**ACTION DESCRIPTION**

Install additional Smart Boards.

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Fittings: Replace All Blackboards/Tackboards		
<b>Linked System</b>	Fittings	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Fittings	<b>Finish Date</b>	-
<b>Priority</b>	5- Recommendations/ Improvements	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	135,700
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Entire Building	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing blackboards and tackboards should be replaced to bring up to district standards.

**PHOTOS**



Fittings: Replace All Blackboards/Tackboards

-

**ACTION DESCRIPTION**

Remove or recover existing blackboards with markerboards, replace tackboards. 7400 SQFT

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Floor Finishes: Refurbish Lower Level Ramps		
<b>Linked System</b>	Floor Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Floor Finishes	<b>Finish Date</b>	-
<b>Priority</b>	3- Necessary - Not Yet Critical (3-5 Yrs)	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	08/10/2009	<b>Total Estimated Cost:</b>	22,922
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Ramps in Lower Level	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing ramps are in poor condition and need to be replaced with handrails added.

**PHOTOS**



Floor Finishes: Refurbish Lower Level Ramps

-

**ACTION DESCRIPTION**

Reconstruct or repair existing wood ramps (3) location in lower level. Cover with nonslip finish, add handrails. 3 Ramps, 120 L.F. Total Railing

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Floor Finishes: Replace Vinyl Asbestos Tile in Classrooms		
<b>Linked System</b>	Floor Finishes	<b>Inspection Date</b>	08/10/2006
<b>Prime System</b>	Floor Finishes	<b>Finish Date</b>	-
<b>Priority</b>	5- Recommendations/ Improvements	<b>Status</b>	Open
<b>Inspector Name</b>	Fern, Bob	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	275,698
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	All Classrooms 1957 Addition	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Existing VAT floors are in good condition but look dated.

**PHOTOS**



Floor Finishes: Replace Vinyl Asbestos Tile in Classrooms

-

**ACTION DESCRIPTION**

Removing existing VAT, replace with VCT

**District:** Duluth Public Schools

**Asset Name:** Laura MacArthur Elementary School

**Facility:** Laura MacArthur Elementary School

**Asset Number:** 525

**Category:** Upgrades

<b>Requirement Name</b>	Lighting Equipment: Dimming System		
<b>Linked System</b>	Lighting Equipment	<b>Inspection Date</b>	11/30/2006
<b>Prime System</b>	Lighting Equipment	<b>Finish Date</b>	-
<b>Priority</b>	5- Recommendations/ Improvements	<b>Status</b>	Open
<b>Inspector Name</b>	Crotteau, Paul	<b>Actual Cost</b>	0
<b>Action Date</b>	-	<b>Total Estimated Cost:</b>	47,200
<b>Funding Year</b>	-	<b>Funding Type</b>	-
<b>Requirement Location</b>	Stage Area	<b>Annual Energy/Ops Savings \$</b>	-
<b>Savings Description</b>	-		

**REQUIREMENT DESCRIPTION**

Dimming system could be improved with newer system and better technology.

**PHOTOS**

**ACTION DESCRIPTION**

Replace dimming system with newer system for better stage lighting and control.