FACILITY CONDITION
ASSESSMENT

STATE OF VERMONT
2 Governor Aiken Avenue
Montpelier, Vermont 05633

FACILITY CONDITION ASSESSMENT
of
I-89 NORTH & SOUTH INFORMATION CENTERS
5200 Interstate 89 North and 5800 Interstate 89 South
Georgia, Vermont 05478

PREPARED BY:

EMG
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EMG Project #: 106686.14R-018.305
Date of Report: February 4, 2015
On site Date: October 6, 2014

20 YEAR EXPENDITURE FORECAST

I-89 Information Centers North and South Bound
5200 Route 89 North, 5800 Route 89 South

Element No.	Component Description	Asset	Location	Action	Estimated Useful Life or Replacement Cycle (Yrs)	Remaining Useful Life (Yrs)	Quantity	Unit of Measurement	Unit Cost	Plan Type	Priority	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total	Total
												0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
												Deferred	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Deferred	Scheduled
A. SUBSTRUCTURE																																	
A10	FOUNDATIONS																																
A1011	Concrete Perimeter Footings	Concrete Perimeter Footings	SB	Replace Concrete Perimeter Footings	60	14	140.00	LF	$14.60	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,044	$0	$0	$0	$0	$0	$0	$2,044
A1011	Concrete Perimeter Footings	Concrete Perimeter Footings	NB	Replace Concrete Perimeter Footings	60	14	140.00	LF	$14.60	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,044	$0	$0	$0	$0	$0	$0	$2,044
A1031	Standard Concrete Slab	Standard Concrete Slab	NB Vending area	Replace Standard Concrete Slab	40	0	100.00	SF	$17.98	IN - Beyond Rated Life	Priority 1	$1,798	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,798	$0
A1031	Raised (elevated above grade) Concrete Slab	Raised (elevated above grade) Concrete Slab	SB	Replace Raised (elevated above grade) Concrete Slab	60	14	25.00	CY	$314.88	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,872	$0	$0	$0	$0	$0	$0	$7,872
A1031	Standard Concrete Slab	Standard Concrete Slab	SB Vending area	Replace Standard Concrete Slab	40	0	100.00	SF	$17.98	IN - Beyond Rated Life	Priority 1	$1,798	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,798	$0
A1031	Raised (elevated above grade) Concrete Slab	Raised (elevated above grade) Concrete Slab	NB	Replace Raised (elevated above grade) Concrete Slab	60	14	25.00	CY	$314.88	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,872	$0	$0	$0	$0	$0	$0	$7,872
											A. SUBSTRUCTURE SUB-TOTALS	$3,596	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$19,832	$0	$0	$0	$0	$0	$3,596	$19,832
B. SHELL																																	
B20	EXTERIOR ENCLOSURE																																
B2011	Wood Shingles, Unfinished Cedar Or Redwood	Wood Shingles, Unfinished Cedar Or Redwood	SB	Replace Wood Shingles, Unfinished Cedar Or Redwood	25	10	16.00	CSF	$851.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,616	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,616
B2011	Curtain Wall Glazing	Curtain Wall Glazing	NB Entry	Replace Curtain Wall Glazing	20	5	300.00	SF	$81.86	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$24,558	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$24,558
B2011	Curtain Wall Glazing	Curtain Wall Glazing	SB Entry	Replace Curtain Wall Glazing	20	5	300.00	SF	$81.86	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$24,558	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$24,558
B2011	Wood Shingles, Unfinished Cedar Or Redwood	Wood Shingles, Unfinished Cedar Or Redwood	NB	Replace Wood Shingles, Unfinished Cedar Or Redwood	25	10	16.00	CSF	$851.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,616	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,616
B2021	2' X 3' Aluminum Window Fixed	2' X 3' Aluminum Window Fixed	SB Clerestory	Replace 2' X 3' Aluminum Window Fixed	25	10	10.00	EA	$586.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,860	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,860
B2021	Wood Window - 2' X 3', Operable	Wood Window - 2' X 3', Operable	SB	Replace Wood Window - 2' X 3', Operable	30	15	1.00	EA	$600.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$600	$0	$0	$0	$0	$0	$600
B2021	2' X 3' Aluminum Window Fixed	2' X 3' Aluminum Window Fixed	NB Clerestory	Replace 2' X 3' Aluminum Window Fixed	25	10	10.00	EA	$586.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,860	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,860
B2021	Wood Window - 2' X 3', Operable	Wood Window - 2' X 3', Operable	NB	Replace Wood Window - 2' X 3', Operable	30	15	1.00	EA	$600.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$600	$0	$0	$0	$0	$0	$600
B2031	Tempered Glass 3'-0" X 7'-0"	Tempered Glass 3'-0" X 7'-0"	Main entry	Replace Tempered Glass 3'-0" X 7'-0"	25	10	1.00	EA	$1,111.53	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,112	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,112
B2031	Tempered Glass 3'-0" X 7'-0"	Tempered Glass 3'-0" X 7'-0"	SB Main entry	Replace Tempered Glass 3'-0" X 7'-0"	25	10	1.00	EA	$1,111.53	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,112	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,112
B30	ROOFING																																
B3011	Asphalt Shingles, Including Removal of Shingles	Asphalt Shingles, Including Removal of Shingles	SB	Replace Asphalt Shingles, Including Removal of Shingles	17	0	13.00	SQ	$337.25	IN - Beyond Rated Life	Priority 1	$4,384	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,384	$0	$0	$4,384	$4,384
B3011	Asphalt Shingles, Including Removal of Shingles	Asphalt Shingles, Including Removal of Shingles	NB	Replace Asphalt Shingles, Including Removal of Shingles	20	0	13.00	SQ	$337.25	IN - Beyond Rated Life	Priority 1	$4,384	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,384	$0
											B. SHELL SUB-TOTALS	$8,769	$0	$0	$0	$0	$49,116	$0	$0	$0	$0	$41,175	$0	$0	$0	$0	$1,200	$0	$4,384	$0	$0	$8,769	$95,875
C. INTERIORS																																	
C10	INTERIOR CONSTRUCTION																																
C1011	Wood Stud Walls, 5/8" Drywall, No Insulation	Wood Stud Walls, 5/8" Drywall, No Insulation	SB	General Painting Cost Per SF, Minor Prep Work, Up to 4-Story Bldg.	10	4	400.00	SF	$1.41	OP - Maintenance	Priority 4	$0	$0	$0	$0	$564	$0	$0	$0	$0	$0	$0	$0	$0	$0	$564	$0	$0	$0	$0	$0	$0	$1,128
C1011	Concrete Blocks	Concrete Blocks	SB	General Painting Cost Per SF, Minor Prep Work, Up to 4-Story Bldg.	10	4	1,200.00	SF	$1.41	OP - Maintenance	Priority 4	$0	$0	$0	$0	$1,692	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,692	$0	$0	$0	$0	$0	$0	$3,384
	Concrete Blocks	Concrete Blocks	SB	Replace Concrete Blocks	50	4	6.00	CSF	$1,410.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$8,460	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,460
C1011	Toilet Partitions Painted Metal Overhead Braced	Toilet Partitions Painted Metal Overhead Braced	NB	Replace Toilet Partitions Painted Metal Overhead Braced	20	5	4.00	EA	$880.50	IN - Beyond Rated Life	Priority 4	$0	$0	$0	$0	$0	$3,522	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,522
C1011	Concrete Blocks	Concrete Blocks	NB	General Painting Cost Per SF, Minor Prep Work, Up to 4-Story Bldg.	10	4	1,200.00	SF	$1.41	OP - Maintenance	Priority 4	$0	$0	$0	$0	$1,692	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,692	$0	$0	$0	$0	$0	$0	$3,384
	Concrete Blocks	Concrete Blocks	NB	Replace Concrete Blocks	50	4	6.00	CSF	$1,410.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$8,460	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,460
C1011	Toilet Partitions Painted Metal Overhead Braced	Toilet Partitions Painted Metal Overhead Braced	SB	Replace Toilet Partitions Painted Metal Overhead Braced	20	5	4.00	EA	$880.50	IN - Beyond Rated Life	Priority 4	$0	$0	$0	$0	$0	$3,522	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,522
C1011	Wood Stud Walls, 5/8" Drywall, No Insulation	Wood Stud Walls, 5/8" Drywall, No Insulation	NB	General Painting Cost Per SF, Minor Prep Work, Up to 4-Story Bldg.	10	4	400.00	SF	$1.41	OP - Maintenance	Priority 4	$0	$0	$0	$0	$564	$0	$0	$0	$0	$0	$0	$0	$0	$0	$564	$0	$0	$0	$0	$0	$0	$1,128
C1021	Flush Steel Painted Door	Flush Steel Painted Door	NB	Replace Flush Steel Painted Door	30	15	4.00	EA	$1,070.50	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,282	$0	$0	$0	$0	$0	$4,282
C1021	Flush Steel Painted Door	Flush Steel Painted Door	SB	Replace Flush Steel Painted Door	30	15	4.00	EA	$1,070.50	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,282	$0	$0	$0	$0	$0	$4,282
C30	INTERIOR FINISHES																																
C3021	Epoxy Flooring	Epoxy Flooring	SB	Replace Epoxy Flooring	15	10	12.50	CSF	$1,252.00	IN - Beyond Rated Life	Priority 4	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,650	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,650
C3021	Epoxy Flooring	Epoxy Flooring	NB	Replace Epoxy Flooring	15	10	12.50	CSF	$1,252.00	IN - Beyond Rated Life	Priority 4	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,650	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,650
C3031	Drywall – Painted Finished Ceilings	Drywall – Painted Finished Ceilings	NB	General Painting Cost Per SF, Minor Prep Work, Up to 4-Story Bldg.	10	4	1,233.00	SF	$1.41	OP - Maintenance	Priority 4	$0	$0	$0	$0	$1,739	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,739	$0	$0	$0	$0	$0	$0	$3,477
	Drywall – Painted Finished Ceilings	Drywall – Painted Finished Ceilings	NB	Replace Drywall – Painted Finished Ceilings	20	5	1,233.00	SF	$1.79	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$2,207	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,207
C3031	Drywall – Painted Finished Ceilings	Drywall – Painted Finished Ceilings	SB	General Painting Cost Per SF, Minor Prep Work, Up to 4-Story Bldg.	10	4	1,233.00	SF	$1.41	OP - Maintenance	Priority 4	$0	$0	$0	$0	$1,739	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,739	$0	$0	$0	$0	$0	$0	$3,477
	Drywall – Painted Finished Ceilings	Drywall – Painted Finished Ceilings	SB	Replace Drywall – Painted Finished Ceilings	20	5	1,233.00	SF	$1.79	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$2,207	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,207
											C. INTERIORS SUB-TOTALS	$0	$0	$0	$0	$24,909	$11,458	$0	$0	$0	$0	$31,300	$0	$0	$0	$7,989	$8,564	$0	$0	$0	$0	$0	$84,220
D. SERVICES																																	
D20	PLUMBING																																
D2011	Flush Valve & Water Closet	Flush Valve & Water Closet	NB	Replace Flush Valve & Water Closet	25	10	6.00	EA	$891.74	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,350	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,350
D2011	Flush Valve & Water Closet	Flush Valve & Water Closet	SB	Replace Flush Valve & Water Closet	25	10	6.00	EA	$891.74	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,350	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,350
D2012	Urinal with 1.0 Gpf Model	Urinal with 1.0 Gpf Model	SB	Replace Urinal with 1.0 Gpf Model	25	10	2.00	EA	$935.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,870	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,870
D2012	Urinal with 1.0 Gpf Model	Urinal with 1.0 Gpf Model	NB	Replace Urinal with 1.0 Gpf Model	25	10	2.00	EA	$935.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,870	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,870
D2018	Drinking Fountain	Drinking Fountain	SB	Replace Drinking Fountain	10	4	1.00	EA	$1,195.00	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$1,195	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,195	$0	$0	$0	$0	$0	$0	$2,390
D2018	Drinking Fountain	Drinking Fountain	NB	Replace Drinking Fountain	10	4	1.00	EA	$1,195.00	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$1,195	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,195	$0	$0	$0	$0	$0	$0	$2,390
D2023	Instantaneous Water Heater Installation	Instantaneous Water Heater Installation	NB	Replace Instantaneous Water Heater Installation	15	5	1.00	EA	$889.00	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$889	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$889
D2023	Water Distribution Pump 1/2 HP	Water Distribution Pump 1/2 HP	SB	Replace Water Distribution Pump 1/2 HP	25	10	1.00	EA	$2,670.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,670	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,670
D2023	Water Distribution Pump 1/2 HP	Water Distribution Pump 1/2 HP	NB	Replace Water Distribution Pump 1/2 HP	25	10	1.00	EA	$2,670.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,670	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,670
D2023	Instantaneous Water Heater Installation	Instantaneous Water Heater Installation	SB	Replace Instantaneous Water Heater Installation	15	5	1.00	EA	$889.00	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$889	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$889
D30	HVAC																																
D3041	Central AHU - Constant Volume	Central AHU - Constant Volume	NB	Replace Central AHU - Constant Volume	25	10	1,200.00	CFM	$3.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,600	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,600
D3041	Central AHU - Constant Volume	Central AHU - Constant Volume	SB Duct systems	Replace Central AHU - Constant Volume	25	10	1,200.00	CFM	$3.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,600	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,600
D3051.2	D3051.2 Window/ Through Wall Units	D3051.2 Window/ Through Wall Units	SB Window AC	Replace D3051.2 Window/ Through Wall Units	10	4	1.00	EA	$585.00	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$585	$0	$0	$0	$0	$0	$0	$0	$0	$0	$585	$0	$0	$0	$0	$0	$0	$1,170
D3051.2	D3051.2 Window/ Through Wall Units	D3051.2 Window/ Through Wall Units	NB Window AC	Replace D3051.2 Window/ Through Wall Units	10	4	1.00	EA	$585.00	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$585	$0	$0	$0	$0	$0	$0	$0	$0	$0	$585	$0	$0	$0	$0	$0	$0	$1,170
D3052.2	Propane-Fueled Furnace 100 MBH	Propane-Fueled Furnace 100 MBH	NB	Replace Propane-Fueled Furnace 100 MBH	25	15	1.00	EA	$1,697.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,697	$0	$0	$0	$0	$0	$1,697
D3052.2	Propane-Fueled Furnace 100 MBH	Propane-Fueled Furnace 100 MBH	SB	Replace Propane-Fueled Furnace 100 MBH	25	15	1.00	EA	$1,697.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,697	$0	$0	$0	$0	$0	$1,697
D50	ELECTRICAL SYSTEMS																																
D5021	Fluorescent Fixture,	Fluorescent Fixture,	SB	Replace Fluorescent Fixture,	20	5	14.00	EA	$140.08	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$1,961	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,961
D5021	Incandescent Fixture,	Incandescent Fixture,	NB Track lighting	Replace Incandescent Fixture,	20	5	2.00	EA	$248.00	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$496	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$496
D5021	Fluorescent Fixture,	Fluorescent Fixture,	NB	Replace Fluorescent Fixture,	20	5	14.00	EA	$140.08	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$1,961	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,961
D5021	Incandescent Fixture,	Incandescent Fixture,	SB LED fixture at back door	Replace Incandescent Fixture,	20	14	1.00	EA	$140.08	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$140	$0	$0	$0	$0	$0	$0	$140
D5021	Electrical Wiring	Electrical Wiring	NB	Replace Electrical Wiring	30	15	1,000.00	LF	$8.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,000	$0	$0	$0	$0	$0	$8,000
D5021	Electrical Receptacle and Plugs	Electrical Receptacle and Plugs	SB	Replace Electrical Receptacle and Plugs	20	6	20.00	EA	$63.10	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$0	$1,262	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,262
D5021	Incandescent Fixture,	Incandescent Fixture,	NB Exterior soffit lights	Replace Incandescent Fixture,	20	5	6.00	EA	$140.08	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$840	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$840
D5021	Incandescent Fixture,	Incandescent Fixture,	NB LED fixture at rear door	Replace Incandescent Fixture,	20	14	1.00	EA	$140.08	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$140	$0	$0	$0	$0	$0	$0	$140
D5021	Electrical Receptacle and Plugs	Electrical Receptacle and Plugs	NB	Replace Electrical Receptacle and Plugs	20	6	20.00	EA	$63.10	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$0	$1,262	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,262
D5021	Electrical Wiring	Electrical Wiring	SB	Replace Electrical Wiring	30	15	1,000.00	LF	$8.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,000	$0	$0	$0	$0	$0	$8,000
D5021	Incandescent Fixture,	Incandescent Fixture,	SB Track lighting	Replace Incandescent Fixture,	20	5	2.00	EA	$248.00	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$496	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$496
D5021	Incandescent Fixture,	Incandescent Fixture,	SB Exterior soffit lights	Replace Incandescent Fixture,	20	5	6.00	EA	$140.08	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$840	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$840

Element No.	Component Description	Asset	Location	Action	Estimated Useful Life or Replacement Cycle (Yrs)	Remaining Useful Life (Yrs)	Quantity	Unit of Measurement	Unit Cost	Plan Type	Priority	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total	Total
												0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
												Deferred	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Scheduled	Deferred	Scheduled
D5038	Intrusion Detection System – Indicating Panel, 10 Channel	Intrusion Detection System – Indicating Panel, 10 Channel	NB	Replace Intrusion Detection System – Indicating Panel, 10 Channel	7	3	1.00	EA	$1,959.00	IN - Beyond Rated Life	Priority 1	$0	$0	$0	$1,959	$0	$0	$0	$0	$0	$0	$1,959	$0	$0	$0	$0	$0	$0	$1,959	$0	$0	$0	$5,877
D5038	Intrusion Detection System – Indicating Panel, 10 Channel	Intrusion Detection System – Indicating Panel, 10 Channel	SB	Replace Intrusion Detection System – Indicating Panel, 10 Channel	7	3	1.00	EA	$1,959.00	IN - Beyond Rated Life	Priority 1	$0	$0	$0	$1,959	$0	$0	$0	$0	$0	$0	$1,959	$0	$0	$0	$0	$0	$0	$1,959	$0	$0	$0	$5,877
											D. SERVICES SUB-TOTALS	$0	$0	$0	$3,918	$3,560	$8,373	$2,524	$0	$0	$0	$30,899	$0	$0	$0	$3,840	$19,394	$0	$3,918	$0	$0	$0	$76,426
E. EQUIPMENT & FURNISHING																																	
											E. EQUIPMENT & FURNISHING SUB-TOTALS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
F. SPECIAL CONSTRUCTION AND DEMOLITION																																	
											F. SPECIAL CONSTRUCTION AND DEMOLITION SUB-TOTALS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
G. BUILDING SITEWORK																																	
G20	SITE IMPROVEMENTS																																
G2012	Asphalt- Overlay 1"	Asphalt- Overlay 1"	SB Truck parking and roadway	Crack Sealing and Seal Coating and striping of The Asphalt	5	0	550.00	SY	$3.56	OP - Maintenance	Priority 2	$1,958	$0	$0	$0	$0	$1,958	$0	$0	$0	$0	$1,958	$0	$0	$0	$0	$1,958	$0	$0	$0	$0	$1,958	$5,874
	Asphalt- Overlay 1"	Asphalt- Overlay 1"	SB Truck parking and roadway	Replace Asphalt- Overlay 1"	25	10	70,000.00	SF	$0.50	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$35,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$35,000
G2012	Asphalt- Overlay 1"	Asphalt- Overlay 1"	NB Driveway to building	Crack Sealing and Seal Coating and striping of The Asphalt	5	0	550.00	SY	$3.56	OP - Maintenance	Priority 2	$1,958	$0	$0	$0	$0	$1,958	$0	$0	$0	$0	$1,958	$0	$0	$0	$0	$1,958	$0	$0	$0	$0	$1,958	$5,874
	Asphalt- Overlay 1"	Asphalt- Overlay 1"	NB Driveway to building	Replace Asphalt- Overlay 1"	25	10	5,000.00	SF	$0.50	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,500
G2031	4' Wide Concrete Sidewalk	4' Wide Concrete Sidewalk	NB	Replace 4' Wide Concrete Sidewalk	25	10	350.00	LF	$35.84	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,544	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,544
G2031	Brick Pavers, Sand Bed	Brick Pavers, Sand Bed	SB	Replace Brick Pavers, Sand Bed	20	5	1,500.00	SF	$11.81	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$17,718	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$17,718
G2031	4' Wide Concrete Sidewalk	4' Wide Concrete Sidewalk	SB	Replace 4' Wide Concrete Sidewalk	25	10	350.00	LF	$35.84	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,544	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$12,544
G2031	Brick Pavers, Sand Bed	Brick Pavers, Sand Bed	NB	Replace Brick Pavers, Sand Bed	20	5	1,500.00	SF	$11.81	IN - Beyond Rated Life	Priority 2	$0	$0	$0	$0	$0	$17,718	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$17,718
G2048	Flag Pole, Aluminum - 20' High	Flag Pole, Aluminum - 20' High	NB	Replace Flag Pole, Aluminum - 20' High	20	5	2.00	EACH	$1,430.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$2,860	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,860
G2048	Flag Pole, Aluminum - 20' High	Flag Pole, Aluminum - 20' High	SB	Replace Flag Pole, Aluminum - 20' High	20	5	2.00	EACH	$1,430.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$2,860	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,860
G40	SITE ELECTRICAL UTILITIES																																
G4022	Aluminum Light Pole and Single Fixture, Under 15-Ft.	Aluminum Light Pole and Single Fixture, Under 15-Ft.	SB Exterior LED pole lamps	Replace Aluminum Light Pole and Single Fixture, Under 15-Ft.	20	14	2.00	EA	$1,760.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,520	$0	$0	$0	$0	$0	$0	$3,520
G4022	Aluminum Light Pole and Single Fixture, Under 15-Ft.	Aluminum Light Pole and Single Fixture, Under 15-Ft.	NB Exterior LED pole lamps	Replace Aluminum Light Pole and Single Fixture, Under 15-Ft.	20	14	2.00	EA	$1,760.00	IN - Beyond Rated Life	Priority 3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$3,520	$0	$0	$0	$0	$0	$0	$3,520
											G. BUILDING SITEWORK SUB-TOTALS	$3,916	$0	$0	$0	$0	$45,071	$0	$0	$0	$0	$66,504	$0	$0	$0	$7,040	$3,916	$0	$0	$0	$0	$3,916	$122,531
Z. GENERAL																																	
											Z. GENERAL SUB-TOTALS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
											Expenditure Totals per Year	$16,281	$0	$0	$3,918	$28,469	$114,019	$2,524	$0	$0	$0	$169,878	$0	$0	$0	$38,701	$33,074	$0	$8,302	$0	$0	$15,281	$368,895
											Total Cost (inflated @ 4% per Yr.)	$16,281	$0	$0	$4,407	$33,305	$138,721	$3,194	$0	$0	$0	$251,461	$0	$0	$0	$67,018	$59,564	$0	$16,172	$0	$0	Total *	$415,166

*- Present Value Currency

Current Replacement Value $1,257,500

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CERTIFICATION

The State of Vermont retained EMG to perform this Facility Condition Assessment of the I-89 North and Southbound Information Centers, located at 5200 Interstate 89N and 5800 Interstate 89S, Georgia, Vermont, the "Properties"; the examination of each property was conducted independently, and any observations with respect to either property are noted in this report specifying its location. It is our understanding that the primary interest of the State of Vermont is to locate and evaluate materials and building system defects that might significantly affect the value of the property and to determine if the present Property has conditions that will have a significant impact on its continued operations.

The conclusions and recommendations presented in this report are based on the brief review of the plans and records made available to our Project Manager during the site visit, interviews of available property management personnel and maintenance contractors familiar with the Property, appropriate inquiry of municipal authorities, our Project Manager's walk-through observations during the site visit, and our experience with similar properties.

The FCA was performed at the Client's request using methods and procedures consistent with good commercial and customary practice conforming with ASTM E2018-08, Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process. Within this Property Condition Report (PCR), EMG's reference to the Client follows the ASTM guide's definition of User, that is, the party that retains EMG for the preparation of a baseline FCA of the subject property.

The opinions EMG expresses in this report were formed utilizing the degree of skill and care ordinarily exercised by any prudent architect or engineer in the same community under similar circumstances. EMG assumes no responsibility or liability for the accuracy of information contained within this report that has been obtained from the Client or the Client's representatives, from other interested parties, or from the public domain. The conclusions presented represent EMG's professional judgment based on information obtained during the course of this assignment. EMG's evaluations, analyses, and opinions are not representations regarding the building design, structural soundness, or actual value of the property. Factual information regarding operations, conditions, and test data provided by the Client or the Client's representative has been assumed to be correct and complete. The conclusions presented within this report are based on the data provided, observations made, and conditions that existed specifically on the date of the assessment. EMG certifies that EMG has no undisclosed interest in the subject property, that EMG's relationship with the Client is at arms-length, and that EMG's employment and compensation are not contingent upon the findings or estimated costs to remedy any noted deficiencies due to deferred maintenance and/or any noted component or system replacements.

No testing, exploratory probing, dismantling or operating of equipment or in depth studies were performed unless specifically required under Section 2 of this report. This assessment did not include engineering calculations to determine the adequacy of the Property's original design or existing systems. Although walk-through observations were performed, not all areas were observed (See Section 4.2 for areas observed). There may be defects in the Property, which were in areas not observed or readily accessible, may not have been visible, or were not disclosed by management personnel when questioned. The report describes property conditions at the time that the observations and research were conducted.

EMG's FCA cannot wholly eliminate the uncertainty regarding the presence of physical deficiencies and/or the performance of a subject property's building systems. Preparation of a FCA in accordance with ASTM E2018-08 is intended to reduce, but not eliminate, the uncertainty regarding the potential for component or system failure and to reduce the potential that such component or system failure may not be initially observed. This FCA was prepared recognizing the inherent subjective nature of EMG's opinions as to such issues as workmanship, quality of original installation, and estimating the remaining useful life of any given component or system. It should be understood that EMG's suggested remedy may be determined under time constraints or may be formed without the aid of engineering calculations, testing, exploratory probing, the removal of materials, or design. Furthermore, there may be other alternate or more appropriate schemes or methods to remedy the noted physical deficiencies. EMG's opinions are generally formed without detailed knowledge from individuals familiar with the performance of noted components or systems.

This report has been prepared on behalf of and exclusively for the use of State of Vermont for the purpose stated within Section 2.2 of this report. The report, or any excerpt thereof, shall not be used by any party other than State of Vermont or for any other purpose than that specifically stated in our agreement or within Section 2.2 of this report without the express written consent of EMG.

Any reuse or distribution of this report without such consent shall be at State of Vermont's sole risk, without liability to EMG.

Prepared by: Ralph Manglass Jr. PE, Project Manager

Reviewed by:

Joe Sloboda, report reviewer for Marge Mitnick, PE
jsloboda@emgcorp.com 800.733.0660 x6225

1. EXECUTIVE SUMMARY

1.1. PROPERTY INFORMATION AND GENERAL PHYSICAL CONDITION

The property information is summarized in the table below. More detailed descriptions may be found in the various sections of the report and in the Appendices.

Property Information	
Address:	5200 Interstate 89 N and 5800 Interstate. 89 S, Georgia, Franklin, Vermont 05478
Year constructed:	1968 Renovated 1999
Current owner of property:	State of Vermont
Management Point of Contact:	State of Vermont, E. Joseph Aja, Jr., Project Manager, Buildings and General Services 802.828.5694 phone 802.828.3533 fax
Property type:	Information Center
Gross floor area:	1,233 Square Feet each
Number of buildings:	Two
Number of stories:	One
Parking type and number of spaces:	28 spaces in open lots
Building construction:	Conventional steel and wood frame structure on concrete slab.
Roof construction:	Gabled roofs with asphalt shingles.
Exterior Finishes:	Painted wood shingle siding and wood trim. Aluminum frame curtain wall at entries. Stone veneer.
Heating and/or Air-conditioning:	Propane fired hot air furnace. Window air conditioner.
Fire and Life/Safety:	Emergency lights, exit signs
Dates of visit:	October 6, 2014
Point of Contact (POC):	Tom Pendris
Assessment and Report Prepared by:	Ralph Manglass Jr. PE
Reviewed by:	Joe Sloboda Project Manager jsloboda@emgcorp.com 800.733.0660 x6225

Generally, the property appears to have been constructed within industry standards in force at the time of construction. The property appears to have been well maintained since it was first occupied and is in good overall condition.

According to property management personnel, the property has had a limited capital improvement expenditure program over the past three years, primarily consisting of new carpeting, exterior painting, asphalt pavement seal coating, and roof finish replacement. Supporting documentation was not provided in support of these claims but some of the work is evident.

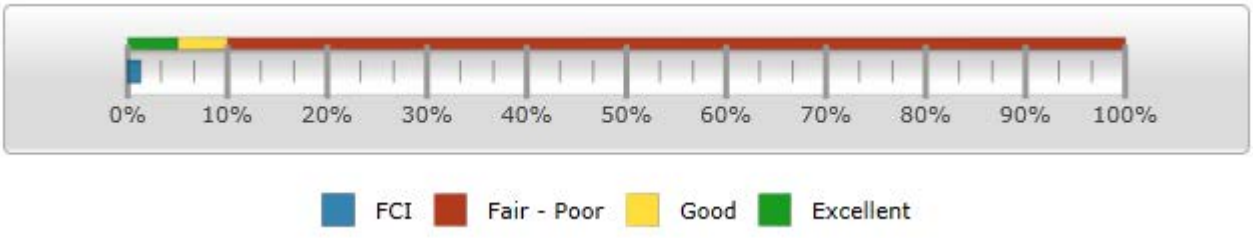
1.2 SUMMARY OF FINDINGS

This report represents summary-level findings for the Facility Condition Assessment. The deficiencies identified in this assessment can be combined with potential new construction requirements to develop an overall Long Term Capital Needs Plan that can be the basis for a facility wide capital improvement funding strategy. Key findings from the assessment include:

Key Finding	Metric
Facility Condition Index	1.29
Current Replacement Value	$1,257,500
Immediate Capital Needs	$16,281
1-5 Year Capital Needs	$146,406
6-10 Year Capital Needs	$172,402

1.3 FACILITY CONDITION INDEX

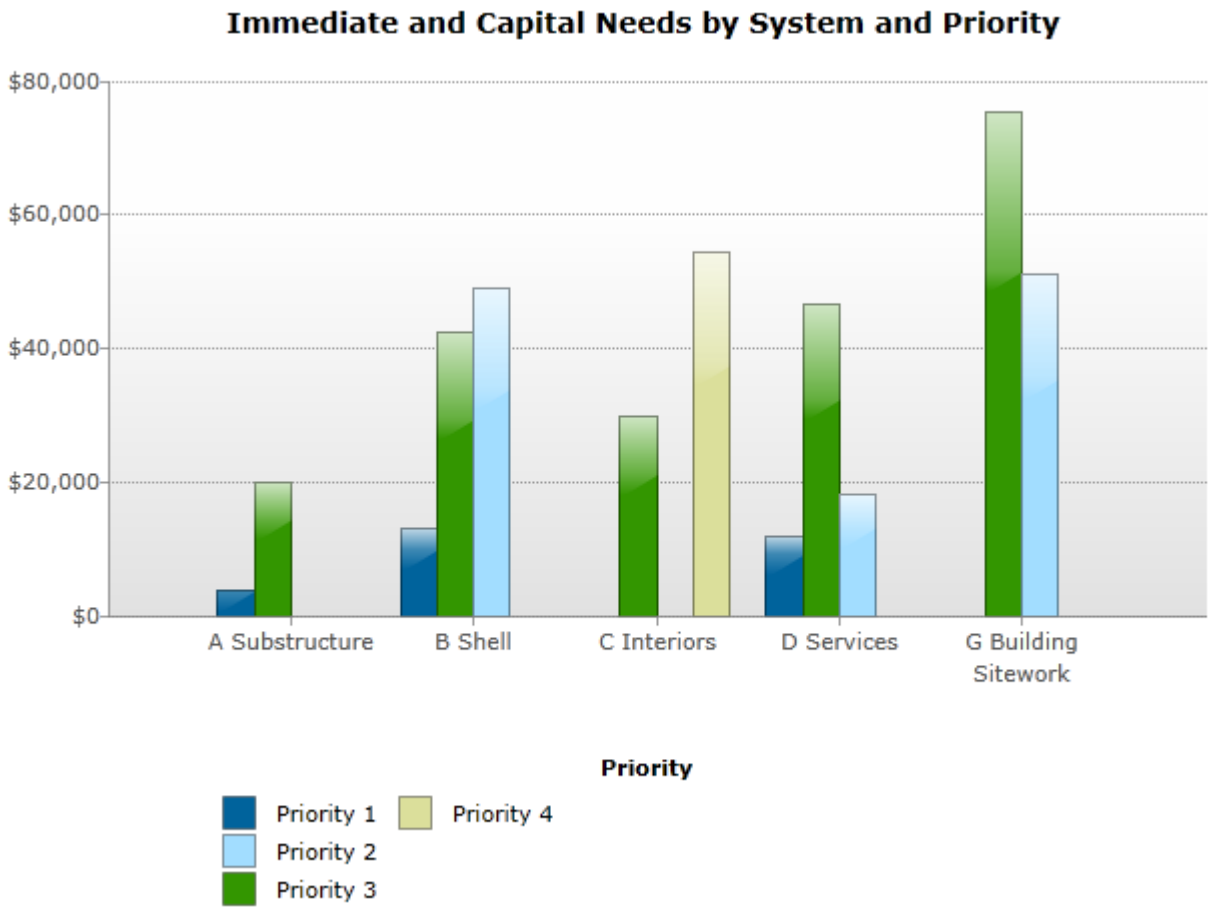
The Facility Condition Index (FCI) gives an indication of a building's or portfolio's overall state of condition. The values are based on a 0-100%+ scale and are derived by dividing the repair costs for a facility by a theoretical replacement value. This replacement value is calculated by multiplying the existing building square footage of a given facility by the Cost per Square Foot to construct a new, similar facility. Typically, the FCI is calculated using only the current condition values, not taking into account the future need identified in the life cycle evaluation. Accounting principles indicate that a value of 65%, or the "rule of two-thirds", be utilized for the FCI threshold for identifying potential replacement candidates. Once the current repair costs reach 65%, or roughly two-thirds of the full replacement value of the estimated cost to replace a facility, it may not be prudent to continue to fund repairs. In cases where aggressive facilities planning is expected to be necessary, this threshold may be adjusted to address more pressing need.



I-89 Georgia Northbound and Southbound Information Centers, FCI: 1.29%

1.4 IMMEDIATE AND CAPITAL NEEDS SORTED BY PRIORITY

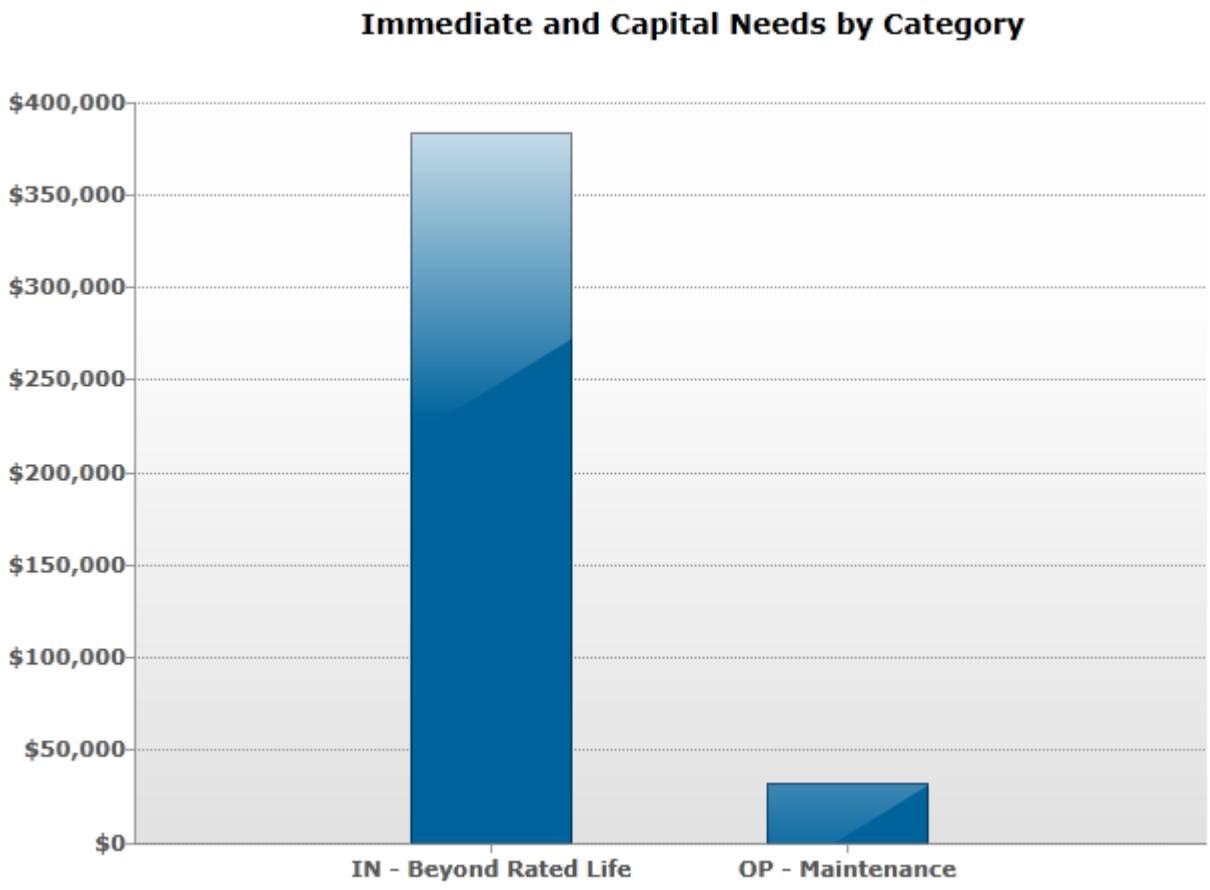
Just because a building system or component has an immediate or capital requirement does not necessarily mean that item is a high priority when compared to the needs of another component. The needs have been prioritized according to five priority levels, with Priority 1 items being the most critical to address:



	Priority					
Building System	**1**	**2**	**3**	**4**	**5**	**Total**
A Substructure	$3,596	$	$19,832	$	$	$23,428
B Shell	$13,153	$49,116	$42,375	$	$	$104,644
C Interiors	$	$	$29,898	$54,322	$	$84,220
D Services	$11,754	$18,017	$46,655	$	$	$76,426
G Building Sitework	$	$51,099	$75,348	$	$	$126,447
Totals	**$28,503**	**$118,233**	**$214,108**	**$54,322**	**$**	**$415,166**

1.5 IMMEDIATE AND CAPITAL NEEDS SORTED BY CATEGORY

The deficiencies are sorted by categories which define briefly the reason the need exists. A requirement may have more than one applicable category. The category is selected based on the need priority, the most heavily impacted building system and the category with the greatest life safety significance.



Building System	Total Cost
OP - Maintenance	$31,642
IN - Beyond Rated Life	$383,524
Total	**$415,166**

The following is a list of the categories with a brief description:

Code Compliance

- Accessibility: Conditions that violate the American Disabilities Act guidelines
- Building Code: Conditions that violate Building codes
- Life Safety: Conditions that violate NFPA 101 Life Safety Code

Operations

- Energy: Conditions that adversely affect energy use
- Maintenance: Components or systems that require routine maintenance
- Security: Conditions that compromise the protection of the asset or its occupants

Environmental

- Air/ Water Quality: Conditions that affect air or water quality
- Asbestos: Visible observance of suspected asbestos-containing material(ACM)
- Lead Visible Observance of suspected lead based paint
- PCB: Observance of suspected PCB containing equipment

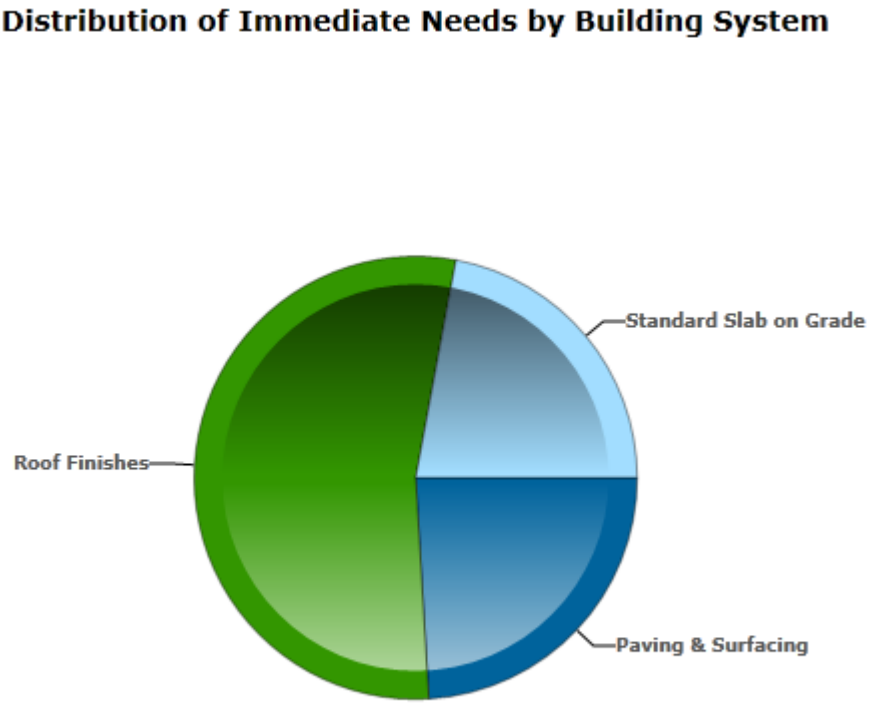
Functionality

- Mission: Components which do not meet the mission of the organization
- Modernization: Conditions that need to made modern in appearance or function
- Plant Adaptation: Components or systems that must change to fit a new or adapted use
- Obsolescence: Components or systems that are or are becoming obsolete
- Capacity: Components or system which cannot meet demand load

Integrity

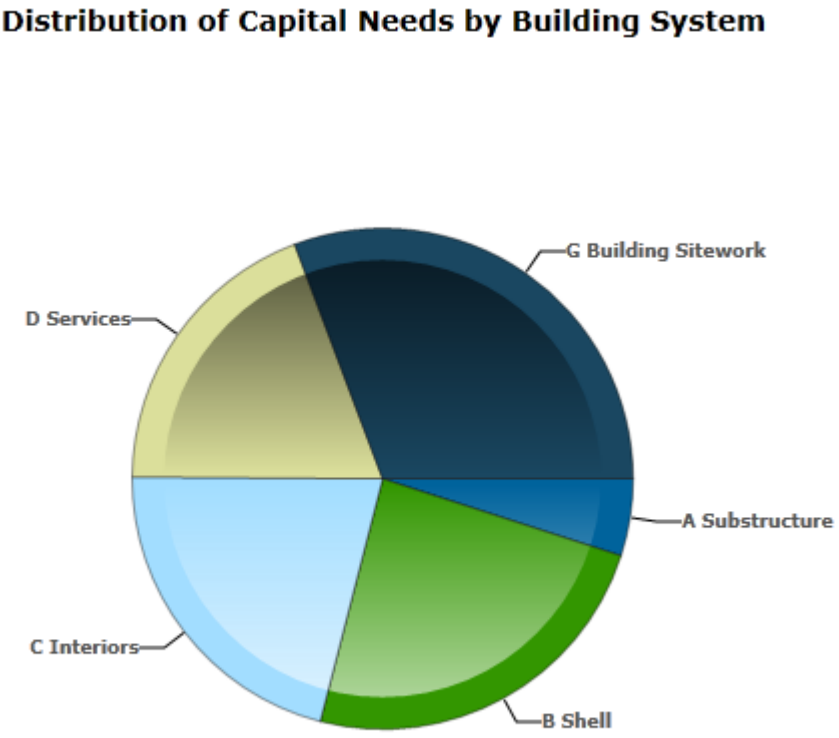
- Appearance: Problems with the asset's appearance that are not functional in nature
- Reliability: Components or systems which cannot be depended on
- Beyond Rated Life: A component or system that has exceeded its rated life

1.6 DISTRIBUTION OF IMMEDIATE NEEDS BY BUILDING SYSTEM



Building System	Estimated Cost	Percentage of Total Cost
Paving & Surfacing	$3,916	24.1%
Roof Finishes	$8,769	53.9%
Standard Slab on Grade	$3,596	22.1%
Total	**$16,281**	**100%**

1.7 DISTRIBUTION OF CAPITAL NEEDS BY BUILDING SYSTEM



Building System	Estimated Cost	Percentage of Total Cost
A Substructure	$19,832	5.0%
B Shell	$95,875	24.0%
C Interiors	$84,220	21.1%
D Services	$76,426	19.2%
G Building Sitework	$122,531	30.7%
Total	**$398,885**	**100%**

1.8. SPECIAL ISSUES AND FOLLOW-UP RECOMMENDATIONS

As part of the FCA, a limited assessment of accessible areas of the building(s) was performed to determine the presence of mold, conditions conducive to mold growth, and/or evidence of moisture. Property personnel were interviewed concerning any known or suspected mold, elevated relative humidity, water intrusion, or mildew-like odors. Sampling is not a part of this assessment.

There are no visual indications of the presence of mold growth, conditions conducive to mold growth, or evidence of moisture in representative readily accessible areas of the property.

1.9. OPINIONS OF PROBABLE COST

Cost estimates are attached at the front of this report (following the cover page).

These estimates are based on Invoice or Bid Document/s provided either by the Owner/facility and construction costs developed by construction resources such as *R.S. Means* and *Marshall & Swift,* EMG's experience with past costs for similar properties, city cost indexes, and assumptions regarding future economic conditions.

Opinions of probable costs should only be construed as preliminary, order of magnitude budgets. Actual costs most probably will vary from the consultant's opinions of probable costs depending on such matters as type and design of suggested remedy, quality of materials and installation, manufacturer and type of equipment or system selected, field conditions, whether a physical deficiency is repaired or replaced in whole, phasing of the work (if applicable), quality of contractor, quality of project management exercised, market conditions, and whether competitive pricing is solicited, etc. ASTM E2018-08 recognizes that certain opinions of probable costs cannot be developed within the scope of this guide without further study. Opinions of probable cost for further study should be included in the PCR.

1.9.1. Methodology

Based upon site observations, research, and judgment, along with referencing Expected Useful Life (EUL) tables from various industry sources, EMG opines as to when a system or component will most probably necessitate replacement. Accurate historical replacement records, if provided, are typically the best source of information. Exposure to the elements, initial quality and installation, extent of use, the quality and amount of preventive maintenance exercised, etc., are all factors that impact the effective age of a system or component. As a result, a system or component may have an effective age that is greater or less than its actual chronological age. The Remaining Useful Life (RUL) of a component or system equals the EUL less its effective age. Projections of Remaining Useful Life (RUL) are based on continued use of the Property similar to the reported past use. Significant changes in tenants and/or usage may affect the service life of some systems or components.

Where quantities could not be derived from an actual take-off, lump sum costs or allowances are used. Estimated costs are based on professional judgment and the probable or actual extent of the observed defect, inclusive of the cost to design, procure, construct and manage the corrections.

1.9.2. Immediate Repairs and Short Term Costs

Immediate repairs are opinions of probable costs that require immediate action as a result of: (1) material existing or potential unsafe conditions, (2) material building or fire code violations, or (3) conditions that, if not addressed, have the potential to result in, or contribute to, critical element or system failure within one year or will most probably result in a significant escalation of its remedial cost.

Short term costs are opinions of probable costs to remedy physical deficiencies, such as deferred maintenance, that may not warrant immediate attention, but that require repairs or replacements, which should be undertaken on a priority basis in addition to routine preventive maintenance. Opinions of probable costs may include costs for testing, exploratory probing, and further analysis should this be deemed warranted by the consultant. The performance of such additional services is beyond the FCA scope of work. Generally, the time frame for such repairs is within one to two years.

1.9.3. Replacement Reserves

Replacement Reserves are for recurring probable expenditures, which are not classified as operation or maintenance expenses. The replacement reserves should be budgeted for in advance on an annual basis. Replacement Reserves are reasonably predictable both in terms of frequency and cost. However, Replacement Reserves may also include components or systems that have an indeterminable life but, nonetheless, have a potential for failure within an estimated time period.

Replacement Reserves exclude systems or components that are estimated to expire after the reserve term and are not considered material to the structural and mechanical integrity of the subject property. Furthermore, systems and components that are not deemed to have a material effect on the use of the Property are also excluded. Costs that are caused by acts of God, accidents, or other occurrences that are typically covered by insurance, rather than reserved for, are also excluded.

Replacement costs are solicited from ownership/property management, EMG's discussions with service companies, manufacturers' representatives, and previous experience in preparing such schedules for other similar facilities. Costs for work performed by the ownership's or property management's maintenance staff are also considered.

EMG's reserve methodology involves identification and quantification of those systems or components requiring capital reserve funds within the assessment period. The assessment period is defined as the effective age plus the reserve term. The assessment period for this report is 20 years. Additional information concerning system's or component's respective replacement costs (in today's dollars), typical expected useful lives, and remaining useful lives were estimated so that a funding schedule could be prepared. The Replacement Reserves Schedule presupposes that all required remedial work has been performed or that monies for remediation have been budgeted for items defined in the Immediate Repair and Short Term Cost Estimate.

2. PURPOSE AND SCOPE

2.1. PURPOSE

EMG was retained by the client to render an opinion as to the Property's current general physical condition on the day of the site visit.

Based on the observations, interviews and document review outlined below, this report identifies significant deferred maintenance issues, existing deficiencies, and material code violations of record at municipal offices, that affect the Property's use. Opinions are rendered as to its structural integrity, building system condition and the Property's overall condition. The report also notes building systems or components that have realized or exceeded their typical expected useful lives.

The physical condition of building components is typically defined as being in one of three categories: Good, Fair, and Poor. For the purposes of this report, the following definitions are used:

Good	=	Satisfactory as-is. Requires only routine maintenance during the assessment period. Repair or replacement may be required due to a system's estimated useful life.
Fair	=	Satisfactory as-is. Repair or replacement is required due to current physical condition and/or estimated remaining useful life.
Poor	=	Immediate repair, replacement, or significant maintenance is required.

2.2. SCOPE

The scope of the Facility Condition Assessment includes, but not necessarily limited to the following:

General Building Information, including:

- A building description
- A site description (this is more of a "general" above grade site condition assessment and does not imply excavation)
- A description of the exterior envelope and the condition of each component
- A description of the interior finishes and their condition
- Comments regarding accessibility
- Comments regarding the existence of any hazardous materials including lead paint, asbestos-containing materials, mold and the like
- A discussion of any fire or life safety issues
- Identification of any "risk" factors, such as location in flood prone area, wetlands, earthquake zone, "emergency" facility-related conditions, snow/ice shedding hazards, tripping hazards, etc.
- A description and assessment of the HVAC system
- A description and assessment of the electrical system
- A description and assessment of the plumbing system

- A description and assessment of any elevators
- A description and assessment of the building's fire detection and prevention systems
- An energy efficiency audit of all building components and systems, including the building envelope (roof, walls, foundation and fenestration), efficiency of pumps, motors, lighting, etc. This is intended to be an ASHRAE Level II Audit.
- Detailed project summaries with totals;
- Potential "project classes" include:

  a. Capital renewal;

  b. Deferred maintenance; and

  c. Plant adaptation.

- Potential "project types" include:

  a. Accessibility;

  b. Electrical;

  c. Exterior (Envelope)

  d. Fire/Life Safety;

  e. HVAC (including Control Systems)

  f. Interior/Finish Systems;

  g. Plumbing;

  h. Site,

  i. Energy Saving Measures; (including annual energy consumption and estimated energy costs for lighting, other electrical, and heating); and

  j. Security (building systems).

- Specific project details and cost estimates including: A project by project description and cost analysis with sufficient detail to reveal the scope of work, its location and the expected cost in "today's'" dollars. Identify source(s) used as a basis for the estimates.
- Drawings, in AutoCAD format, indicating the specific project locations: Floor plans as well as site plans – if necessary – in sufficient detail to identify and locate all of the specific projects. Base floor plans and any site plans required and available will be supplied to the contractor in CAD format or as scanned images, if CAD format is not available.
- Life Cycles for building components with summary and projections: For each building or site component identified within a project, the Contractor shall provide:
- The quantity required;
- The units that the item is usually associated with;
- The unit cost of the item;
- The extended total cost of the item:
- Any necessary adjustment factors;
- The original installation date; and
- The life expectancy typically associated with the item.

2.3. PERSONNEL INTERVIEWED

The following personnel from the facility and government agencies were interviewed in the process of conducting the FCA:

Name and Title	Organization	Phone Number
Tom Pendris Plant Maintenance Supervisor	Vermont BGS	802.734.6142
Alan Garceau Maintenance Mechanic	Vermont BGS	802.734.6142

The FCA was performed with the assistance of Tom Pendris and Alan Garceau, of Vermont BGS, the on site Points of Contact (POC), who were cooperative and provided information that appeared to be accurate based upon subsequent site observations. The on site contacts are completely knowledgeable about the subject property and answered most questions posed during the interview process. The POC's management involvement at the property has been for the past 1 and 16 years respectively.

2.4. DOCUMENTATION REVIEWED

Prior to the FCA, relevant documentation was requested that could aid in the knowledge of the subject property's physical improvements, extent and type of use, and/or assist in identifying material discrepancies between reported information and observed conditions. The review of submitted documents does not include comment on the accuracy of such documents or their preparation, methodology, or protocol. The Documentation Request Form is provided in Appendix E.

Although Appendix E provides a summary of the documents requested or obtained, the following list provides more specific details about some of the documents that were reviewed or obtained during the site visit.

Renovation As-built Construction Drawings, VT BGS dated 7/21/99.

2.5. PRE-SURVEY QUESTIONNAIRE

A Pre-Survey Questionnaire was sent to the POC prior to the site visit. The questionnaire is included in Appendix E. Information obtained from the questionnaire has been used in preparation of this report.

2.6. WEATHER CONDITIONS

Clear with temperatures in the 50s (°F) and light winds.

3. CODE INFORMATION AND ACCESSIBILITY

3.1. CODE INFORMATION, FLOOD ZONE AND SEISMIC ZONE

According to the POC the properties are not subject to local code official reviews.

According to the Flood Insurance Rate Map, published by the Federal Emergency Management Agency (FEMA) and dated September 16, 1981, the property is located in Zone C, defined as areas outside the 500-year flood plain with less than 0.2% annual probability of flooding. Annual Probability of Flooding of Less than one percent.

According to the 1997 Uniform Building Code Seismic Zone Map of the United States, the property is located in Seismic Zone 2A, defined as an area of low to moderate probability of damaging ground motion.

3.2. ADA ACCESSIBILITY

Generally, Title III of the Americans with Disabilities Act (ADA) prohibits discrimination by entities to access and use of "areas of public accommodations" and "commercial facilities" on the basis of disability. Regardless of its age, these areas and facilities must be maintained and operated to comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

Buildings completed and occupied after January 26, 1992 are required to comply fully with the ADAAG. Existing facilities constructed prior to this date are held to the lesser standard of compliance to the extent allowed by structural feasibility and the financial resources available. As an alternative, a reasonable accommodation pertaining to the deficiency must be made.

During the FCA, a limited visual observation for ADA accessibility compliance was conducted. The scope of the visual observation was limited to those areas set forth in *EMG's Abbreviated Accessibility Checklist* provided in Appendix D of this report. It is understood by the Client that the limited observations described herein does not comprise a full ADA Compliance Survey, and that such a survey is beyond the scope of EMG's undertaking. Only a representative sample of areas was observed and, other than as shown on the Abbreviated Accessibility Checklist, actual measurements were not taken to verify compliance. The scope of the visual observation did not include any areas within tenant spaces.

At a public service property, the areas considered as a public accommodation besides the site itself and the parking, are the exterior accessible route, and the interior common areas, including the restrooms.

The facility generally appears to be accessible as stated within the defined priorities of Title III of the Americans with Disabilities Act.

A full ADA Compliance Survey may reveal some aspects of the property that are not in compliance.

4. EXISTING BUILDING ASSESSMENT

4.1. TENANT UNIT TYPES

All 2,466 square feet of both buildings are occupied by a single tenant, State of Vermont. The vending machines and the lighting in the vending area are maintained by the Vermont Agency for the Blind.

4.2. TENANT UNITS OBSERVED

All of the interiors were observed in order to gain a clear understanding of the property's overall condition. Other areas accessed included the exterior of the properties and viewing the roofs.

All areas of the property were available for observation during the site visit.

5. SITE IMPROVEMENTS

5.1. UTILITIES

The following table identifies the utility suppliers and the condition and adequacy of the services.

Site Utilities		
Utility	**Supplier**	**Condition & Adequacy**
Sanitary sewer	City of St. Albans	Good
Storm sewer	City of St. Albans	Good
Domestic water	On site well	Good
Electric service	Vermont Energy Coop	Good
Propane	Local delivery	Good

Observations/Comments:

- The utilities appear to be adequate for the property. There are no unique, on site utility systems such as emergency electrical generators, septic systems, or water or waste water treatment plants.

5.2. PARKING, PAVING, AND SIDEWALKS

There is a loop roadway that includes an on ramp and an off ramp from US Interstate 89. There are parking spaces along curbing at the building side of the roadway.

There is a secondary loop around the Northbound center that includes truck parking on the north side.

The Southbound center has a branch road that leads to the south side of the building and includes handicap parking spaces near the building and acts as a service drive. The parking areas, drive aisles, and service drives are paved with asphaltic concrete.

Based on a physical count, parking is provided for 14 cars at each center. The parking ratio is 11.3 spaces per thousand square feet of floor area. All of the parking stalls are located in open lots. There are 2 handicapped-accessible parking stalls at the Southbound center and one at the Northbound center. One stall at each center is van accessible.

The sidewalks throughout the property are constructed of cast-in-place concrete. Cast-in-place concrete steps with metal handrails connect the Northbound parking area with the building.

The curbs and gutters are constructed of granite.

There are concrete paver plaza areas and walkways near the buildings and vending areas at each center.

Observations/Comments:

- The asphalt pavement is in fair to poor condition. There are significant signs of cracks or surface deterioration. In order to maximize the pavement life, pothole patching, crack sealing, seal coating, and re-striping of the asphalt paving will be required during the assessment period. The cost of this work is included in the deferred cost section of the Replacement Reserves Cost Estimate-Table.
- The concrete pavement is in good overall condition. There are no significant signs of cracks or surface deterioration. Selective replacement and sealing of minor cracks will be required during the assessment period as part of the property management's routine maintenance program.
- The concrete slab in the vending area shows signs of deterioration due to age and is in fair to poor condition and will require replacement. The cost of the replacement is listed in the deferred cost section of the Replacement Reserve Cost Estimate Table.
- The concrete paver plazas and walkways are in good condition and will require routine maintenance during the assessment period.

5.3. DRAINAGE SYSTEMS AND EROSION CONTROL

Storm water from the roofs, landscaped areas, and paved areas flows into on site inlets and catch basins with underground piping connected to the municipal storm water management system.

Observations/Comments:

- There is no evidence of storm water runoff from adjacent properties. The storm water system appears to provide adequate runoff capacity. There is no evidence of major ponding or erosion.

5.4. TOPOGRAPHY AND LANDSCAPING

The Northbound center is set on a moderately sloping hillside that continues to the rear of the building.

The Southbound center is on a level lot that has a moderate slope away along the rear of the level area.

The landscaping consists of trees, shrubs, and grasses. Flower beds are concentrated near the buildings.

Surrounding properties are undeveloped and heavily treed.

Observations/Comments:

- The topography and adjacent uses do not appear to present conditions detrimental to the property.
- The landscape materials are in good condition and will require routine maintenance during the assessment period.

5.5. GENERAL SITE IMPROVEMENTS

Property identification is provided by lettering displayed on the exterior elevations. There are state highway signs at the entrance roads.

Site lighting is provided by metal street light standards. The light standards are spaced along the walkways at the parking areas. There are pole-mounted lights at each building for added site illumination.

Exterior building illumination is provided by light fixtures surface-mounted on the exterior walls. Recessed light fixtures are located in the exterior soffits.

There are two aluminum flagpoles at each center.

There is a wood vending area canopy with lighting at each center.

Dumpsters are located in the parking areas and are placed on the asphalt paving.

Observations/Comments:

- The building signs are in good condition. Routine maintenance will be required during the assessment period.
- The exterior site and building light fixtures are in good condition. Routine maintenance will be required during the assessment period.
- The dumpsters are owned and maintained by the refuse contractor.

6. BUILDING ARCHITECTURAL AND STRUCTURAL SYSTEMS

6.1. FOUNDATIONS

According to the structural drawings, the foundations consist of cast-in-place concrete perimeter wall footings with concrete frost walls and a concrete slab on grade.

Observations/Comments:

- The foundations and footings could not be directly observed during the site visit. There is no evidence of movement that would indicate excessive settlement.
- There is cracking and heaving of the concrete slabs below the outdoor vending areas at each center that needs repair. The cost of this work is included in the Replacement Reserves Cost Estimate Table.

6.2. SUPERSTRUCTURE

Each building is a conventional steel and wood-framed structure and has wood stud-framed exterior and interior bearing walls, which support the roof diaphragms.

The roof diaphragms are constructed of wood rafters and are sheathed with plywood. The roof overhangs are supported with painted steel columns.

The main entry walls are aluminum framed glass curtain walls.

Observations/Comments:

- Most of the superstructure is concealed. Walls and floors appear to be plumb, level, and stable. There are no significant signs of deflection or movement.

6.3. ROOFING

The primary roofs are classified as gabled and shed roofs. The roofs are finished with asphalt shingles over asphalt-saturated paper. The roofs have sheet metal flashing elements. The roofs are insulated with fiberglass batts.

The roofs drain over the eaves to paved and landscaped areas.

There are no attics. The ceiling is attached to the roof diaphragms. The rafter spaces are ventilated by soffit and ridge vents.

Observations/Comments:

- The roof finishes are approximately 16 years old. Information regarding roof warranties or bonds were requested but are not available.
- The roof shingles are in fair to poor condition with numerous missing tabs noted and will require replacement during the assessment period. The cost of this work is included in the deferred cost section of the Replacement Reserves Cost Estimate Table.
- The roof flashings are in good condition and will require routine maintenance during the assessment period.
- Roof drainage appears to be adequate.
- The roof vents are in good condition and will require routine maintenance during the assessment period.
- There is no evidence of moisture or water intrusion in the roof systems.

6.4. EXTERIOR WALLS

The exterior walls are finished primarily with painted wood shingle siding and wood trim. Portions of the exterior walls are accented with a stone veneer. The entry walls are aluminum framed glass curtain walls.

Building sealants (caulking) are located between dissimilar materials, at joints, and around window and door openings.

Observations/Comments:

- The exterior finishes are in good condition. Painting and patching will be required during the assessment period. The cost of this work is included in the Replacement Reserves Cost Estimate Table.
- The sealant is flexible, smooth, and in good condition and will require routine maintenance during the assessment period.

6.5. EXTERIOR AND INTERIOR STAIRS

There are no interior stairs.

The exterior stairs at the Northbound center are constructed of reinforced concrete. The handrails are constructed of metal.

Observations/Comments:

- The exterior stairs and handrails are in good condition and will require routine maintenance during the assessment period.

6.6. EXTERIOR WINDOWS AND DOORS

The primary windows are part of an aluminum-framed storefront system, which incorporates the entry doors. The windows are glazed with insulated panes set in metal frames. The doors are fully glazed aluminum-framed doors set in the metal framing system.

There are fixed metal framed opaque window panels at the rear clerestory that provide daylight to the restrooms.

The service doors are painted metal doors set in metal frames. The doors have cylindrical locksets with lever handle hardware.

Observations/Comments:

- The storefront window system is in good condition, was installed in the 1998 renovations, and will require routine maintenance during the assessment period.
- There is no evidence of window leaks or window condensation. The opaque windows are in good condition and will require routine maintenance during the assessment period.
- The exterior doors and door hardware are in good condition and will require routine maintenance during the assessment period.

6.7. PATIO, TERRACE, AND BALCONY

Not applicable. There are no patios, terraces, or balconies.

6.8. COMMON AREAS, ENTRANCES, AND CORRIDORS

Each of the lobbies contains an information desk and wall displays, and provides access to the public restrooms.

There are Men's and Women's common area restrooms and a unisex handicap/family restroom.

The following table identifies the interior common areas and generally describes the finishes in each common area.

Common Area	Floors	Walls	Ceilings
Lobby	Epoxy coated concrete	Painted drywall, wood panels	Painted drywall
Common Area Restrooms	Epoxy coated concrete	Ceramic tile and Marlite. Painted drywall	Painted drywall

Observations/Comments:

- It appears that the interior finishes in the common areas have been renovated within the last 5 years.
- The interior finishes in the common areas are in good condition. Based on its estimated Remaining Useful Life (RUL), Interior painting will be required during the assessment period. The cost of this work is included in the Replacement Reserves Cost Estimate.

7. BUILDING MECHANICAL AND PLUMBING SYSTEMS

7.1. BUILDING HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

Heating is provided in each building by a propane-fired forced air furnace with a capacity of 120 MBH.

Both buildings have a wall air conditioner in the lobby area.

Air distribution is provided to supply air registers by ducts concealed above the ceilings. The heating systems are controlled by programmable thermostats.

The restrooms at each center are ventilated by central mechanical exhaust fans above the ceiling at the hall area.

Observations/Comments:

- Records of the installation, maintenance, upgrades, and replacement of the HVAC equipment have been maintained since the property was first occupied.
- The furnaces and wall air conditioners vary in age. HVAC equipment is reportedly replaced on an "as-needed" basis.
- The HVAC equipment appears to be in good condition. Based on its estimated Remaining Useful Life (RUL), the furnaces, wall air conditioners and exhaust fans will require replacement during the assessment period. The cost of this work is included in the Replacement Reserves Cost Estimate Table.

7.2. BUILDING PLUMBING AND DOMESTIC HOT WATER

The plumbing systems include the incoming water service, the hot and cold water piping system, and the sanitary sewer and vent system. The risers and the horizontal distribution piping are copper. The soil and vent systems are copper and cast iron.

Water for each center is provided by an on site drilled well with a submersible pump and indoor storage tanks.

There are underground sewage pumping stations for each center.

Domestic hot water at each center is supplied by one 8-gallon electric water heater. The water heaters are located in the utility areas.

The public restrooms have commercial-grade fixtures and accessories including water closets, urinals, and lavatories.

Observations/Comments:

- The plumbing systems appear to be well maintained and in good condition. The water pressure appears to be adequate. The plumbing systems will require routine maintenance during the assessment period.
- There is no evidence that the property uses polybutylene piping for the domestic water distribution system.
- The pressure and quantity of hot water appear to be adequate.
- The sewage pump stations are owned and maintained by the City of St. Albans.
- The water heaters appear to be in good condition. Based on their estimated Remaining Useful Life (RUL), the water heaters will require replacement during the assessment period. The cost of this work is included in the Replacement Reserves Cost Estimate.
- The accessories and fixtures in the common area restrooms are in good condition and will require routine maintenance during the assessment period.

7.3. BUILDING PROPANE DISTRIBUTION

Propane service is supplied from a buried tank on each site. The regulators are located along the exterior walls of the buildings. The propane distribution piping within each building is soft copper tubing.

Observations/Comments:

- The pressure and quantity of propane appear to be adequate.
- The regulators appear to be in good condition and will require routine maintenance during the assessment period.
- Only limited observation of the propane distribution piping can be made due to hidden conditions. The propane piping appears to be in good condition.

7.4. BUILDING ELECTRICAL

The electrical supply lines run underground to pad-mounted transformers at the rear of the buildings, which feed exterior-mounted electrical meters.

The main electrical service size for each center is 200 amperes, 120/240 volt single-phase three-wire alternating current (AC). The electrical wiring is copper, installed in metallic conduit and metallic sheathed cable. Circuit breaker panels are located in the utility areas of each building.

Observations/Comments:

- The onsite electrical systems up to the meters are owned and maintained by the respective utility company.
- The electrical service and capacity appear to be adequate for the property's demands.
- The switchgear, circuit breaker panels, and electrical meters appear to be in good condition and will require routine maintenance during the assessment period.

7.5. BUILDING ELEVATORS AND CONVEYING SYSTEMS

Not applicable. There are no elevators or conveying systems.

7.6. FIRE PROTECTION AND SECURITY SYSTEMS

There are no fire protection or detection systems in the buildings.

Common areas have battery back-up exit lights and illuminated exit signs.

There are video cameras in the lobbies and on the roof of the buildings

Observations/Comments:

- Information regarding fire department inspection information is not available as the premises are exempt from local fire regulations according to the POC.
- Exit sign and emergency light replacement is considered to be routine maintenance.
- The video cameras record to a local system and are not monitored.

8. STAFF/UTILITY SPACES

8.1. INTERIOR FINISHES

The following table generally describes the interior finishes in the staff/utility areas:

Typical Tenant Unit Finishes			
Room	**Floor**	**Walls**	**Ceiling**
Staff/Utility Areas	Painted concrete	Painted CMU and drywall	Painted drywall

The interior doors are painted metal doors set in metal frames. The interior doors have cylindrical locksets with lever handle hardware.

Observations/Comments:

- The interior finishes in the staff/utility areas are in good condition. Repainting will be necessary during the assessment period and is included in cost for 6.8.
- The interior doors and door hardware are in good condition and will require routine maintenance during the assessment period.

8.2. HVAC

Not applicable. See Section 7.1. for descriptions and comments regarding the HVAC systems.

8.3. PLUMBING

Not applicable. See Section 7.2. for descriptions and comments regarding the building plumbing systems.

8.4. ELECTRICAL

Not applicable. See Section 7.4. for descriptions and comments regarding the building electrical systems.

9. OTHER STRUCTURES

A storage building is located at the rear of each center. The maintenance building is a pre-manufactured wood structure set on concrete blocks.

There is a wooden canopy at the vending area of each center that is anchored to a concrete slab.

Observations/Comments:

- The sheds and vending canopies are in good condition and will require routine maintenance during the assessment period. Refer to 6.1 for repairs needed to the vending canopy foundations.

10. ENERGY AUDIT

10.1. EXECUTIVE SUMMARY

EMG has identified 4 non-renewable Energy Conservation Measures (ECMs) and 0, renewable Energy Conservation Measures (ECMs) for this property. The savings for each measure are calculated using standard engineering methods followed in the industry, and detailed calculations for ECM are provided in Appendix for reference. A 10% discount in energy savings was applied to account for the interactive effects amongst the ECMs. In addition to the consideration of the interactive effects, EMG has applied a 15% contingency to the implementation costs to account for potential cost overruns during the implementation of the ECMs.

The following table summarizes the recommended ECMs in terms of description, investment cost, energy consumption reduction, and cost savings.

Summary of Financial Information for Recommended Non Renewable Energy Conservation Measures

Item	Estimate
Net Initial ECM Investment ***(Current Dollars Only)***	$ 13,825 *(In Current Dollars)*
Estimated Annual Cost Savings ***(Current Dollars Only)***	$3,016 *(In Current Dollars)*
ECM Effective Payback	4.58 years
Estimated Annual Energy Savings	7.82%
Estimated Annual Energy Utility Cost Savings ***(Excluding Water)***	10.07%
Estimated Annual Water Cost Saving	46.41%

Summary of Financial Information for Recommended Renewable Energy Conservation Measures

EMG performed an analysis of all the State of Vermont properties to determine the feasibility of renewable energy measures, in making the evaluation EMG has determined that Solar Photovoltaic power maybe available under certain conditions and locations. The analysis of the properties and conditions as examined has been incorporated into a supplemental report and attached hereto, and is made a part hereof.

Summary of Existing Energy Performance

Building's EPA Energy Performance Rating[1]	XX[2]
Building's Annual Energy Consumption	466,477 kBtu
Total Annual Energy Costs	$17,099.71

[1]EPA Ratings above 75 qualify for an Energy Star Performance Rating.

[2] Not available for EPA Energy Performance Rating due to size, usage patterns, and consumption.

List of Recommended Energy Conservation Measures For I-89 N & S Information Centers										
ECM #	Description of ECM	Projected Initial Investment	Estimated Annual Energy Savings		Estimated Annual Water Savings	Total Estimated Annual Cost Savings	Total Estimated Annual Cost Savings	Total Estimated Annual Cost Savings	S.I.R.	Simple Payback
		$	Thermal	Electricity	Water	Whole Property	Owner Savings	Tenant Savings		Years
			MMbtu	kWh	kGal	$	$	$		
No/Low Cost Recommendations										
1	Install Low Flow Faucet Aerators Add Low Flow Aerators To Faucet	$250	0	3,098	17	$615	-	-	20.96	0.41
2	Upgrade Inefficient Linear Fluorescent Lamps And Fixtures Details: Replace Linear Fluorescent Lamps With Energy Efficient Linear Fluorescent Lamps	$477	0	2,206	0	$392	-	-	9.81	1.22
Totals for No/Low Cost Items		**$727**	**0**	**5,304**	**17**	**$1,007**	**$0**	**$0**		
Capital Cost Recommendations										
1	Replace Existing Residential Style Water Heater With New Energy Efficient Units Details: Eg.All Scattered Sites, High Rise Units And Garden Style Units	$2,761	0	6,570	0	$1,059	-	-	5.27	2.61
2	Install Low Flow Tankless Restroom Fixtures Replace Toilets And Urinals With Low Flow Types With New Flush Valves	$8,533	0	0	186	$1,285	-	-	1.80	6.64
Total For Capital Cost		**$11,294**	**0**	**6,570**	**186**	**$2,344**	**$0**	**$0**		
	Interactive Savings Discount @ 10%		0	-1,187	-20	-$335	$0	$0		
	Total Contingency Expenses @ 15%	$1,803								
Total for Improvements		**$13,825**	**0**	**10,686**	**183**	**$3,016**	**$0**	**$0**		**4.58**

10.2. ENERGY STAR PORTFOLIO MANAGER FACILITY SUMMARY

EMG uses the Portfolio Manager tool developed by the Federal Environmental Protection Agency to track relative energy uses of buildings by property type. This tool allows the input of a facility's historic utility data to be compared with normalized data of a large database of its peer facilities.

Based on this analysis, the I-89 Information Centers are not subject to modeling for the EPA Energy Star Rating. The property is too small in terms of area to allow for a comparison to baseline properties and is therefore excluded from the model.

10.3. EPA ENERGY STAR RATING

The national energy performance rating is a type of external benchmark that helps energy managers to assess how efficiently their buildings use energy, relative to similar buildings nationwide. The rating system's 1-100 scale allows everyone to understand quickly how a building is performing. For example, a rating of 50 indicates an average energy performance, while a rating of 75 or better indicates top performance. The higher the rating, the better the building is performing. Organizations can evaluate energy performance among the buildings in their portfolio, while also comparing their performance with other similar buildings nationwide. Additionally, building owners and managers can use the performance ratings to help identify buildings that offer the best opportunity for energy improvement and recognition.
To receive the energy performance rating, facility-related data entered into the Portfolio Manager, must adhere to a series of operating and energy use conditions. If one or more of these conditions are not met, the facility will receive "N/A" (Not Available) as a rating. "NA" means that the Portfolio Manager is unable to calculate a rating for that particular period ending date, given the operating and energy use conditions provided.
A building must obtain a rating of 75 or better to be eligible to apply for the Energy Star Certification. However, a rating of 75 does not necessarily mean that a building will qualify.

10.4. SOURCE ENERGY AND SITE ENERGY

Buildings use a variety of forms of energy, including electricity, natural gas, fuel oil, and district steam. In order to provide an un-biased rating, the methodology must add together all of the energy used in a building. To combine energy in an equitable way, the ratings use source energy. Source energy is the energy that is consumed at the site, in addition to the energy used in generation and transmission.
The purpose of the conversion from site energy to source energy is to provide an equitable assessment of building-level energy efficiency. Because billed site energy use includes a combination of primary and secondary forms of energy, a comparison using site energy does not provide an equivalent thermodynamic assessment for buildings with different fuel mixes. In contrast, source energy incorporates all transmission, delivery, and production losses, which accounts for all primary fuel consumption and enables a complete assessment of energy efficiency in a building. When source energy is used to evaluate energy performance, an individual building's performance does not receive either a credit or a penalty for using any particular fuel type.

11. FACILITY OVERVIEW AND EXISTING CONDITIONS

11.1. BUILDING OCCUPANCY

A varying number of people occupy the facility during normal operating hours. There are no after-hours occupants unless maintenance or repairs are under way.

Facility Occupancy (avg. people/day)	400
Standard Operating Hours/day	7 AM to 9 PM
Maintenance/ Staff Hours/day	1 staff person all day

Summary of Facility Operating Hours

	Hours Open to the Public	Hours Open to Employees
Monday-Friday	7 AM to 9 PM	7 AM to 9 PM
Saturday	7 AM to 9 PM	7 AM to 9 PM
Sunday	7 AM to 9 PM	7 AM to 9 PM

11.2. BUILDING ENVELOPE

The building envelope consists of the exterior shell, made up of the walls, windows, roof, and floor. The envelope provides building integrity and separates the exterior from the interior conditioned space.

Foundation:

According to the structural drawings, the foundations consist of cast-in-place concrete perimeter wall footings with concrete frost walls and a concrete slab on grade.

Structure:

The building is a conventional wood-framed structure and has load-bearing, wood-framed exterior and interior walls supporting the roof.

Exterior Walls:

The exterior walls are finished with painted, wood shingle siding and wood trim, areas of stone veneer and an aluminum framed glass curtain wall system at the main entry.

The curtain wall system was added during the 1999 renovations and is double pane glass.

Roof:

The primary roofs are sloped. The roofs are finished with asphalt shingles over asphalt-saturated paper.

The roof systems have no attic spaces. The construction drawing show 6 to 14 inches of fiberglass batt insulation in the roof systems. The front roof has the added insulation added when the curtain wall systems were built.

Windows:

The entry vestibule windows at the buildings are fixed, double-glazed, thermally broken units with low-E glazing. There is a single double hung, double glazed wood window at each lobby and fixed translucent insulated panels at the clerestories. The windows were replaced during the renovation 15 years ago and are in condition.

Doors:

The main entrance doors are glazed, aluminum framed storefront types. The glazing is double pane. Weather stripping was observed around the door openings. The weather stripping was observed to be in good condition. Caulking was observed at the perimeter of the door frames. The caulking was observed to be in good condition.

The additional service doors were steel doors in good condition and well sealed.

Building Envelope Summary for Information Centers

Item	Construction Type
Foundation	Concrete slab on grade with frost walls and deep footings
Structure	Wood framed
Exterior Walls	Wood shingles, stone veneer and glass curtain walls
Roof	Rafters with asphalt shingles

Building Element	Type Observed	Observed R-values
Roof	Batt insulation (according to drawings)	R – 19 to 43
Floors	Not Accessible	R - ?
Exterior Walls Above Grade	Batt insulation (according to drawings)	R - 13
Windows	Double paned	
Exterior Doors	Glass storefront, steel	

**Estimated*

11.3. BUILDING HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

Heating:

The facilities are each heated by propane fired forced air furnaces. The furnaces each have a rated input capacity of 120,000 BTUH and are located in the utility area.

There is a 5 kW electric unit heater with an integral thermostat in each utility room.

Cooling:

Each lobby area is cooled by a window air conditioner with an indicated capacity of 10,000 BTUH.

Air Distribution:

Heating air distribution is provided to supply air registers by ducts concealed above the ceilings bordering the utility areas. The heating systems are controlled by local thermostats.

Space Ventilation:

The bathrooms are ventilated by in-line ducted mechanical exhaust fans.

Item	Measured Values
Major Heating system type/capacity	120,000 BTUH
Major Cooling System type/capacity	10,000 BTUH
Heating hot water supply temperature	120 F
Outside Air temperature & Relative Humidity (%) at time of audit	55 F, 75% RH
Interior space temperatures & Relative Humidity (RH%)	69 F, 55% RH
Supply Air Temperature (SAT)/Return Air Temperature (RAT)	140 F, 70 F
Avg. Supply Air rate (CFM/Sq.ft)	0.973 CFM/SF
Avg. Interior space thermostat set-point	68
Avg. Outside Air rate (% & CFM/Sq.ft or CFM/person)	Estimated 800 CFM (Exhaust fan size)

The Mechanical Equipment Schedule in Appendix C contains a summary of the HVAC Equipment at the property.

Space type	Measured Light Levels (Lux/foot candles)	ASHRAE/IESNA Recommended Levels (foot candles)
Lobby	785 Lux/72.93 fc	20
Restroom	945 Lux/87.79 fc	20
Utility area	285 Lux/26.48 fc	50
Avg. Building Lighting Density, W/Sq.Ft	0.902 W/SF	

11.4. BUILDING LIGHTING

Space Lighting:

4-foot light fixtures containing 2 T8 bulbs provide interior lighting in the buildings. The fixtures are currently equipped with electronic ballasts.

There is one CFL bulb in the utility room and 10 CFL bulbs at track lighting in the lobby at each center.

Lighting Controls:

The lights in the public restrooms controlled by automatic lighting controls that consist of ceiling-mounted occupancy sensors.

Exterior Lighting:

Property-owned metal light poles provide site lighting near the building entrances. There are pole lamps at the parking and drive areas that are maintained by the highway department.

A surface-mounted LED light fixture provides illumination at the rear service door at each building. Recessed light fixtures are located in the exterior soffits.

There are 4-foot T8 fluorescent fixtures, recessed incandescent soffit fixtures and wall-mounted LED flood lights at the vending canopies at each center.

Exterior lighting is controlled by timers and is on during dark hours when the centers are open.

Emergency Lighting:

The building emergency light fixtures and "EXIT" fixtures are continuously energized. In the event of a power failure, the emergency battery in each fixture will be activated to power these fixtures. The EXIT signs in the facility consist of LED lamp based fixtures.

Note: 1 foot candle = 10.764 lux

11.5. BUILDING ELEVATORS AND CONVEYING SYSTEMS

Not applicable. There are no elevators or conveying systems.

11.6. BUILDING DOMESTIC WATER

The centers are served by drilled wells with submersible pumps.

Domestic hot water at each center is provided by 8-gallon electric point-of-use heaters.

Each center has a sewage pump station that is owned and maintained by the City of St. Albans, Vermont.

Common Area Restroom Fixtures:

The public restrooms have commercial-grade fixtures and accessories, including water closets, urinals, and lavatories. The toilets and urinals consist of flush valves.

The flush valves and lavatory mixing faucets are controlled by adjustable timer systems with wall push buttons.

The typical flush volume was not apparent but estimated at 3 gallons per Flush (GPF) at the toilets and 1 GPF at the urinals. The lavatories are equipped with aerators rated at 2.2 gallons per Minute (GPM).

11.7. BUILDING NATURAL GAS AND ELECTRICITY

The utilities found at the property consist of Electricity and, Propane.

The electric utility is master metered at each center.

Propane is delivered to the property on an as needed basis to a buried tank.

Domestic Water Heater Details	
DWH type	Electric Point of use
Storage tank capacity	8 gallons
Heating/tank set-point	120 F
Hot water temperature at faucet	120 F
Building faucets, GPM	2.2
Toilets/Urinals, GPF	3.0/1.0

The following table provides the information about the main electric supply and emergency power generation on the property

Electric Supply Details	
Electrical Transformer Type	Delta
Mounting	Pad-mounted
Location	Rear exterior
Main Building Electric service	
Primary Volts	120/240
Secondary Volts	N/A
Phase	Single
Wire	3 wire
Amperes	200
Building Emergency Power Generator	
On site Generator (Y/N)	No
Generator Capacity, KVA	N/A
Generator Fuel Type	N/A
Provides Power For	N/A

Electric	
Meter Type	Master
Meter Location	Rear exterior

12. UTILITY ANALYSIS

Establishing the energy baseline begins with an analysis of the utility cost and consumption of the building. Utilizing the historical energy data and local weather information, we evaluate the existing utility consumption and assign it to the various end-uses throughout the buildings. The Historical Data Analysis breaks down utilities by consumption, cost and annual profile.

This data is analyzed, using standard engineering assumptions and practices. The analysis serves the following functions:

- Allows our engineers to benchmark the energy and water consumption of the facilities against consumption of efficient buildings of similar construction, use and occupancy.
- Generates the historical and current unit costs for energy and water
- Provides an indication of how well changes in energy consumption correlate to changes in weather.
- Reveals potential opportunities for energy consumption and/or cost reduction. For example, the analysis may indicate that there is excessive, simultaneous heating and cooling, which may mean that there is an opportunity to improve the control of the heating and cooling systems.

By performing this analysis and leveraging our experience, our engineers prioritize buildings and pinpoint systems for additional investigation during the site visit, thereby maximizing the benefit of their time spent on site and minimizing time and effort by the customer's personnel.

Based upon the utility information provided about the I-89 Information Centers, the following energy rates are utilized in determining existing and proposed energy costs.

Utility Rates used for Cost Analysis

Electricity (Blended Rate)	Propane	Sewer
$0.16 /kWh	$2.38/Gal	$6.89/kGal

The data analyzed provides the following information: 1) breakdown of utilities by consumption, 2) cost and annual profile, 3) baseline consumption in terms of energy/utility at the facility, 4) the Energy Use Index, or Btu/sq ft, and cost/sq ft. For multiple water meters, the utility data is combined to illustrate annual consumption for each utility type.

12.1. ELECTRICITY

Green Mountain Power and Vermont Electrical Cooperative satisfy the electricity requirements of the facilities. Add sentences commenting on the trends observed in the electricity consumption and costs.

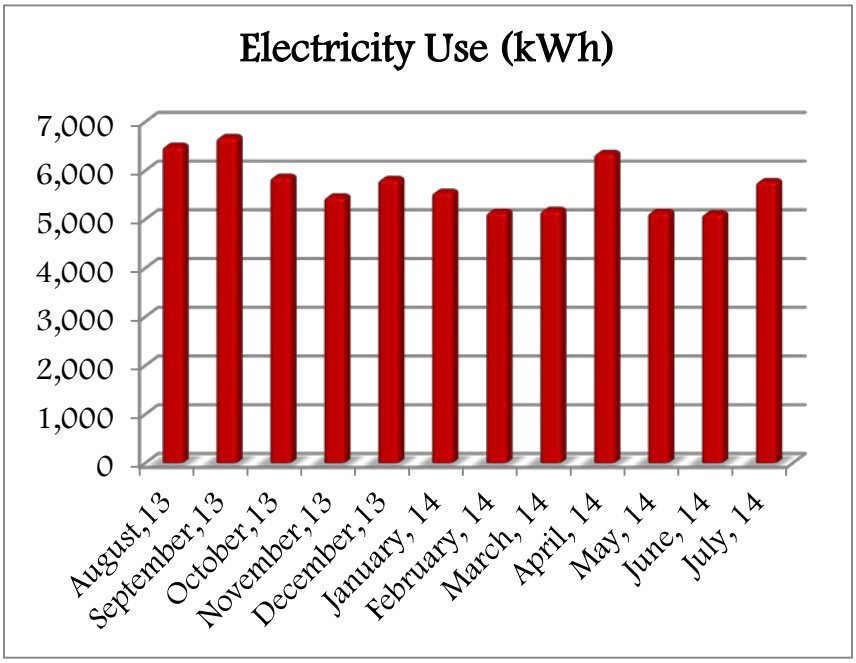
The electrical usage peaks during the height of both the heating and cooling seasons which likely coincide with tourism cycles for the area.

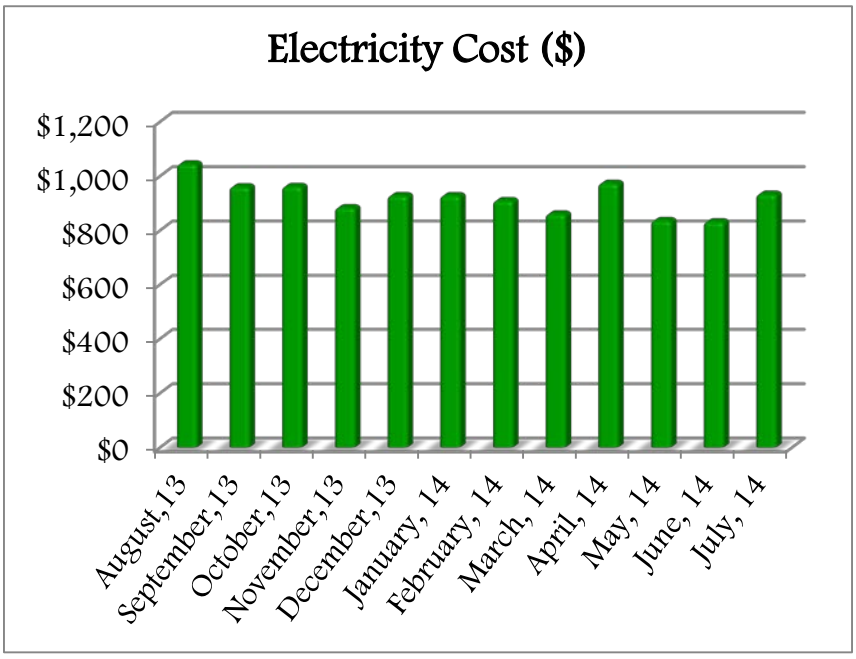
Base loads for the facilities include well pumping, sewage pumping, bathroom ventilation, and lighting.

Based on the 2013-14 electric usage & costs, the average price paid during the year was $0.16 per kWh. The total annual electricity consumption for the 12-month period analyzed is 68,679 kWh for a total cost of $11,069.

Electric Consumption and Cost Data

Billing Month	Consumption (kWh)	Unit Cost/kWh	Total Cost
August, 13	6,508	$0.16	$1,046
September, 13	6,686	$0.14	$962
October, 13	5,871	$0.16	$963
November, 13	5,467	$0.16	$885
December, 13	5,824	$0.16	$929
January, 14	5,563	$0.17	$929
February, 14	5,155	$0.18	$911
March, 14	5,192	$0.17	$862
April,14	6,359	$0.15	$975
May,14	5,153	$0.16	$838
June,14	5,119	$0.16	$833
July,14	5,782	$0.16	$935
Total	**68,679**	**$0.16**	**$11,069**


Electricity Use (kWh)
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
August,13
September,13
October,13
November,13
December,13
January, 14
February, 14
March, 14
April, 14
May, 14
June, 14
July, 14


Electricity Cost ($)
$1,200
$1,000
$800
$600
$400
$200
$0
August,13
September,13
October,13
November,13
December,13
January, 14
February, 14
March, 14
April, 14
May, 14
June, 14
July, 14

12.2. PROPANE

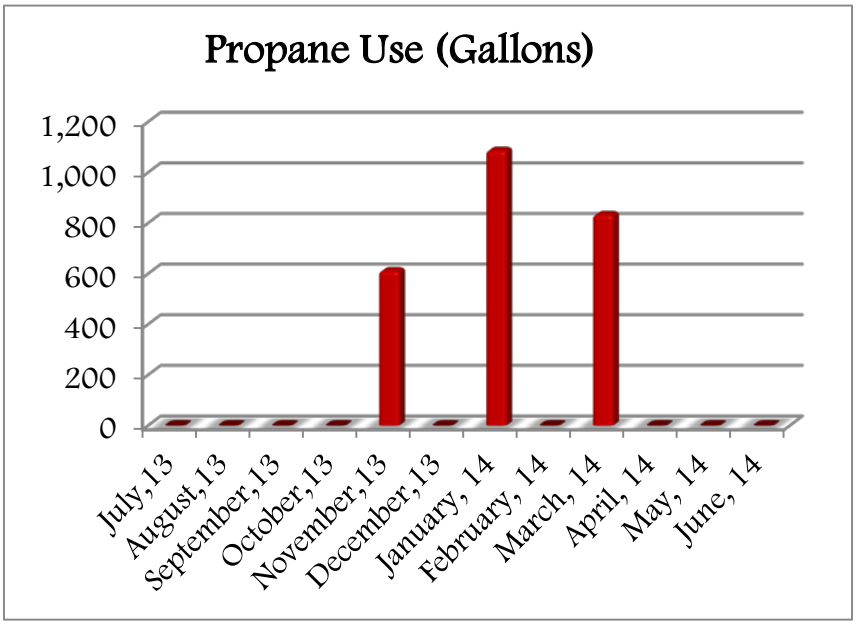
AmeriGas satisfies the propane requirements of the facilities. Deliveries are made as needed.

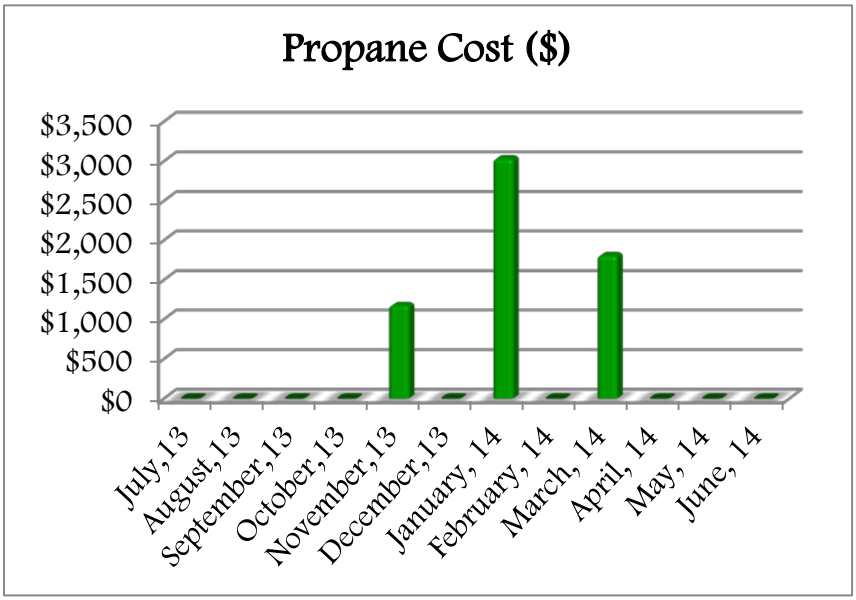
Storage at each center is in buried tanks. The propane is used for building heating and demand is greatest during the colder months.

Based on the 2013-14 delivery records and receipts, the average price paid during the year was $2.38 per-gallon. The total annual propane deliveries for the 12-month period analyzed was 2,537 gallons for a total cost of $6,030.

Propane Consumption and Cost Data

Month	Delivery (gallons)	Unit Cost	Total Cost
July	0	0	$0
August	0	0	$0
September	0	0	$0
October	0	0	$0
November	613	$1.93	$1,182
December	0	0	$0
January	1,089	$2.79	$3,036
February	0	0	$0
March	835	$2.17	$1,812
April	0	0	$0
May	0	0	$0
June	0	0	$0
Total	**2,537**	**$2.38**	**$6,030**


Propane Use (Gallons)
1,200
1,000
800
600
400
200
0
July, 13
August, 13
September, 13
October, 13
November, 13
December, 13
January, 14
February, 14
March, 14
April, 14
May, 14
June, 14


Propane Cost ($)
$3,500
$3,000
$2,500
$2,000
$1,500
$1,000
$500
$0
July, 13
August, 13
September, 13
October, 13
November, 13
December, 13
January, 14
February, 14
March, 14
April, 14
May, 14
June, 14

12.3. SEWER

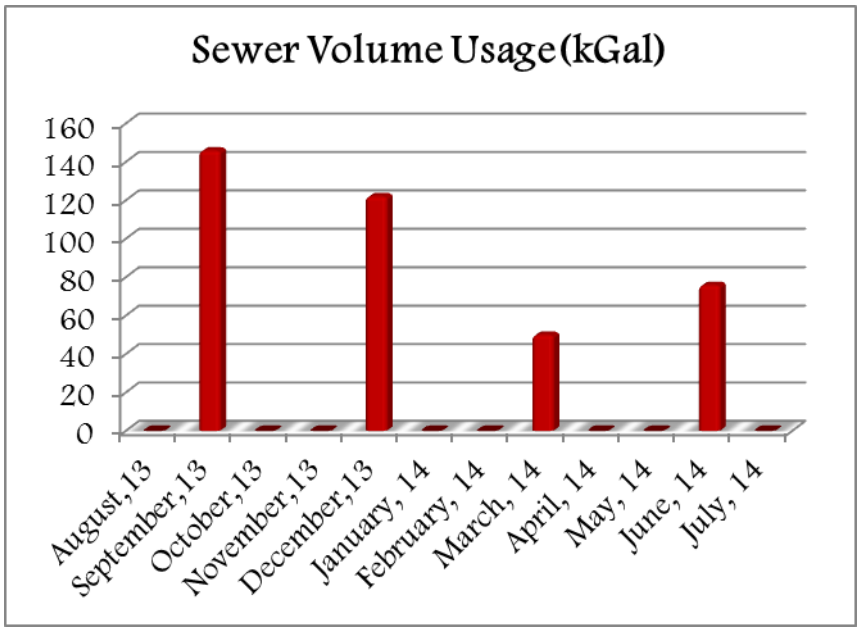
The City of St. Albans satisfies the Sewer requirements of the facilities. Each center has a drilled well that supplies domestic water.

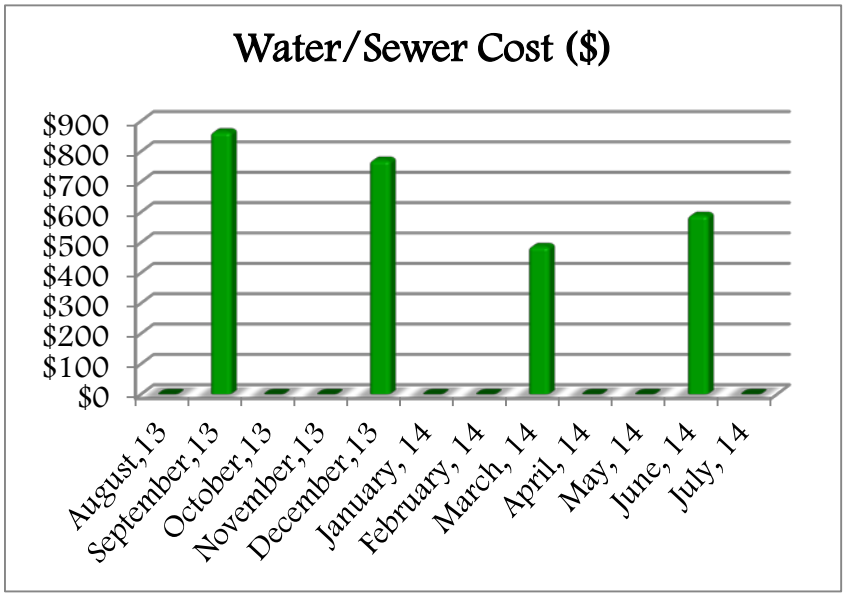
Each center has a sewage pump station that connects to the municipal system.

Based on the 2013-14 sewer usage & costs, the average price paid during the year was $689 per kGallon. The total annual sewer volume for the 12-month period analyzed is 394 kGallons for a total cost of $2,716.

Sewer Consumption and Cost Data

Billing Month	Consumption (kGallons)	Unit Cost/kGallon	Total Cost
July	0	0	$0
August	146	$5.93	$865
September	0	0	$0
October	0	0	$0
November	122	$6.32	$772
December	0	0	$0
January	0	0	$0
February	50	$9.76	$488
March	0	0	$0
April	0	0	$0
May	76	$7.78	$590
June	0	0	$0
Total	**394**	**$6.89**	**$2,716**


Sewer Volume Usage (kGal)
160
140
120
100
80
60
40
20
0
August, 13
September, 13
October, 13
November, 13
December, 13
January, 14
February, 14
March, 14
April, 14
May, 14
June, 14
July, 14


Water/Sewer Cost ($)
$900
$800
$700
$600
$500
$400
$300
$200
$100
$0
August, 13
September, 13
October, 13
November, 13
December, 13
January, 14
February, 14
March, 14
April, 14
May, 14
June, 14
July, 14

12.4. OPERATIONS AND MAINTENANCE PLAN

The quality of the maintenance and the operation of the facility's energy systems have a direct effect on its overall energy efficiency. Energy-efficiency needs to be a consideration when implementing facility modifications, equipment replacements, and general corrective actions. The following is a list of activities that should be performed as part of the routine maintenance program for the property. These actions, which have been divided into specific and general recommendations, will insure that the energy conservation measures identified in this report will remain effective. The following general recommendations should be continued or implemented.

Building Envelope

1. Ensure that the building envelope has proper caulking and weather stripping.
2. Patch holes in the building envelope with foam insulation and fire rated caulk around combustion vents
3. Inspect building vents semiannually for bird infestation
4. Inspect windows monthly for damaged panes and failed thermal seals

Heating and Cooling

1. All preventive maintenance should be performed on all furnaces, which would include cleaning of burners and heat exchanger tubes.
2. Ensure that the combustion vents exhaust outside the conditioned space and the vent dampers are functional.
3. Duct cleaning is recommended every 10 years. This should include sealing of ducts using products similar to 'aero-seal'
4. Ensure that the air dampers are operating correctly
5. Return vents should remain un-obstructed and be located centrally.
6. Temperature set points seasonally adjusted.
7. Change air filters on return vents seasonally. Use only filters with 'Minimum Efficiency Rating Value'(MERV) of 8

Central Domestic Hot Water

1. Ensure all hot water pipes are insulated with fiberglass insulation at all times
2. Replacement water heater should have Energy Factor (EF)>0.9
3. Tank-type water heaters flushed monthly

Lighting

1. Use energy efficient replacement lamps (28W T-8 and CFLs)
2. Clean lighting fixture reflective surfaces and translucent covers.
3. Ensure that timers and/or photocells are operating correctly on exterior lighting

4. Use occupancy sensors for offices and other rooms with infrequent occupancy

Existing Equipment and Replacements

1. Ensure bathroom exhaust outside the building and the internal damper operates properly

2. Office/ computer equipment either in the "sleep" or "off" mode when not used

12.5. ECM DESCRIPTIONS FOR RECOMMENDED ECM'S

12.5.1. ECM Calculation Assumptions

EMG has made the following assumptions in calculation of the Energy Conservation Measures.

- Building operating hours, as detailed in section 5.1 are assumed to be 98 hours per week.
- The facility occupancy is assumed to be approximately 200 people per day per center based on annual attendance figures.
- Annual Heating Equipment Operating Hours are derived from actual consumption and equipment input rates to be 967 hours/year
- Annual Cooling Equipment Operating Hours are estimated at 500.

12.5.2. No/Low Cost ECM Descriptions

EMG has identified 2 No/Low Cost Energy Conservation Measures (ECMs) for this property. This includes all measures which can be implemented below the cost threshold of $1,000.

12.5.2.1 Install Low-Flow Plumbing Fixtures (Aerators)

About 7 to 14 percent of the hot water consumed is used in the sink. By reducing the flow of water coming from the faucets, faucet aerators can generate significant energy savings at low cost and with easy installation. In addition to saving energy, aerators save on water and sewer costs, which are rising in many areas.

The average faucet has a flow rate of about 3 to 5 GPM. Adding a screw-in faucet aerator reduces the flow to 0.5 to 1.5 GPM in the bathroom and 2.2 GPM in the kitchen. In addition to saving energy and water, the "foamier" water that comes from faucet aerators wets objects better than water from a faucet with no aerator, which tends to bounce off the object rather than thoroughly wetting it.

This ECM recommends replacement of the faucet aerators at the property. Replacements should include all sinks located on the property, in all lavatories.

12.5.2.2 Replace Standard Fluorescent Lamps with Energy-Saving Lamps in Common Areas, and Install Electronic Ballasts in Common Areas

Buildings that have relatively old fluorescent lighting in common areas can realize modest energy savings by simply replacing the existing fluorescent lamps (tubes) with energy saving lamps which use 10 to 20 percent less electricity. Energy-savings lamps are T12 size (1.5 inches in diameter) and are designed to replace older lamps of the same size. Additionally, a very common and effective lighting improvement is to replace old fluorescent lamps and ballasts with new T8 (1 inch in diameter) lamps and electronic ballasts. A "ballast" is a device that all fluorescent lights require in order to turn on and give off light. The ballast controls the light output as well as the energy use. By replacing magnetic ballasts and existing fluorescent lamps with electronic ballasts and new fluorescent lamps, significant savings can be achieved.

12.5.3. Capital Cost ECM Descriptions

EMG has identified 2 Capital Cost Energy Conservation Measures (ECMs) for this property. This list includes recommended measures which have an estimated implementation cost of greater than $1,000.

12.5.3.1 Replace Inefficient Water Heaters

Usually, a water heater is replaced only when it fails. But if the existing water heater is at least ten years old, it is near the end of its useful life, and it may make sense to replace it before it fails. By replacing the water heater before it stops working, the PHA may enjoy significant energy savings, in addition to avoiding a situation in which residents are without hot water while a new system is being selected. Replacing old, oversized water heaters generally yield higher savings than if the system is old but appropriately sized. In any case, if the old water heater is leaking or shows signs of heavy rust or water streaking in the combustion chamber, it should be replaced.

This ECM recommends replacement existing residential style water heater with new energy efficient units at the property. Replacements should include existing water heaters in use at each information center.

12.5.3.2 Install Low-Flow Plumbing Fixtures (Toilets)

In some areas, water and sewer rates have increased dramatically over the past few years and are rivaling the cost of energy. Reducing water use through conservation strategies can generate significant cost savings. Significant advances in technology over the past decade have resulted in the availability of reliable, high-quality water-saving toilets on the market.

Some water providers offer rebates and incentives for replacing inefficient toilets. Contact your provider to see if there is a program available.

This ECM recommends replacement of all existing toilets with low flow toilets at the property. Replacements should include 1.2 gpf pressure assist toilets.

13. APPENDICES

APPENDIX A: Photographic Record

APPENDIX B: Site Plans

APPENDIX C: Supporting Documentation

APPENDIX D: EMG Abbreviated Accessibility Checklist

APPENDIX E: Pre Survey Questionnaire and Documentation Request Checklist

APPENDIX F: Terminology

APPENDIX G: Energy Conservation Measures

APPENDIX H: Resumes

APPENDIX A:
PHOTOGRAPHIC RECORD

EMG PHOTOGRAPHIC RECORD

Project No.: 106686.14R-018.305 **Project Name: I-89 North & South Information Centers**

Photo #1:	Northbound front elevation

Photo #2:	Northbound rear and right elevation

Photo #3:	Northbound site flatwork

Photo #4:	Northbound vending canopy

Photo #5:	Northbound accessible parking

Photo #6:	Northbound parking and walkway at drive loop

EMG PHOTOGRAPHIC RECORD

Project No.: 106686.14R-018.305 **Project Name: I-89 North & South Information Centers**

Photo #7:	Northbound stairs

Photo #8:	Northbound lobby

Photo #9:	Northbound storage shed

Photo #10:	Northbound vending area foundation with crack and settlement

Photo #11:	Northbound hot air furnace

Photo #12:	Southbound front elevation

EMG PHOTOGRAPHIC RECORD

Project No.: 106686.14R-018.305 **Project Name: I-89 North & South Information Centers**

Photo #13:	Southbound rear elevation with storage shed

Photo #14:	Southbound right elevation

Photo #15:	Southbound flatwork

Photo #16:	Southbound vending canopy (note settlement)

Photo #17:	Southbound accessible parking

Photo #18:	Southbound parking and loop drive with truck parking beyond

EMG PHOTOGRAPHIC RECORD

Project No.: 106686.14R-018.305 **Project Name: I-89 North & South Information Centers**

Photo #19:	Southbound entrance and flatwork

Photo #20:	Southbound lobby

Photo #21:	Southbound hot air furnace

Photo #22:	Typical Mens restroom

Photo #23:	Typical restroom finishes

Photo #24:	Typical handicap/family restroom

EMG PHOTOGRAPHIC RECORD

Project No.: 106686.14R-018.305 **Project Name: I-89 North & South Information Centers**

Photo #25:	Typical water heater

Photo #26:	Typical exhaust fan

Photo #27:	Typical piping

Photo #28:	Typical utility room with electrical panel and desk

Photo #29:	Well tanks

Photo #30:	Wall air conditioner

EMG PHOTOGRAPHIC RECORD

Project No.: 106686.14R-018.305 **Project Name: I-89 North & South Information Centers**

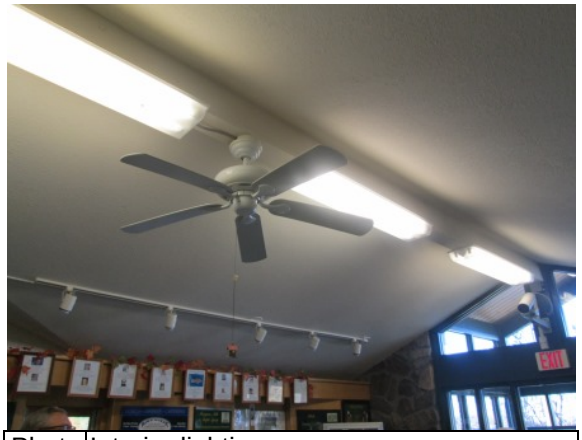


Photo #31:	Interior lighting

Photo #32:	Exterior light at service door

Photo #33:	Site light poles and roadway light poles

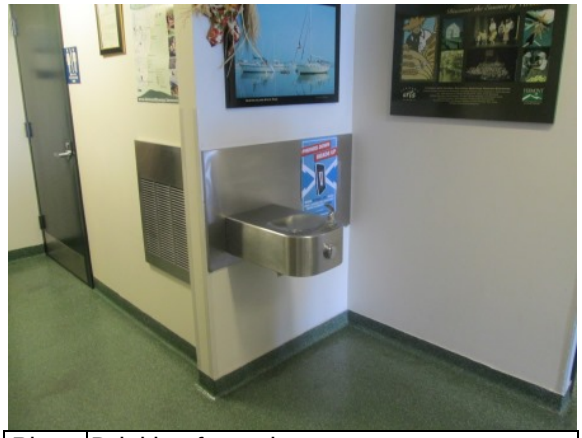


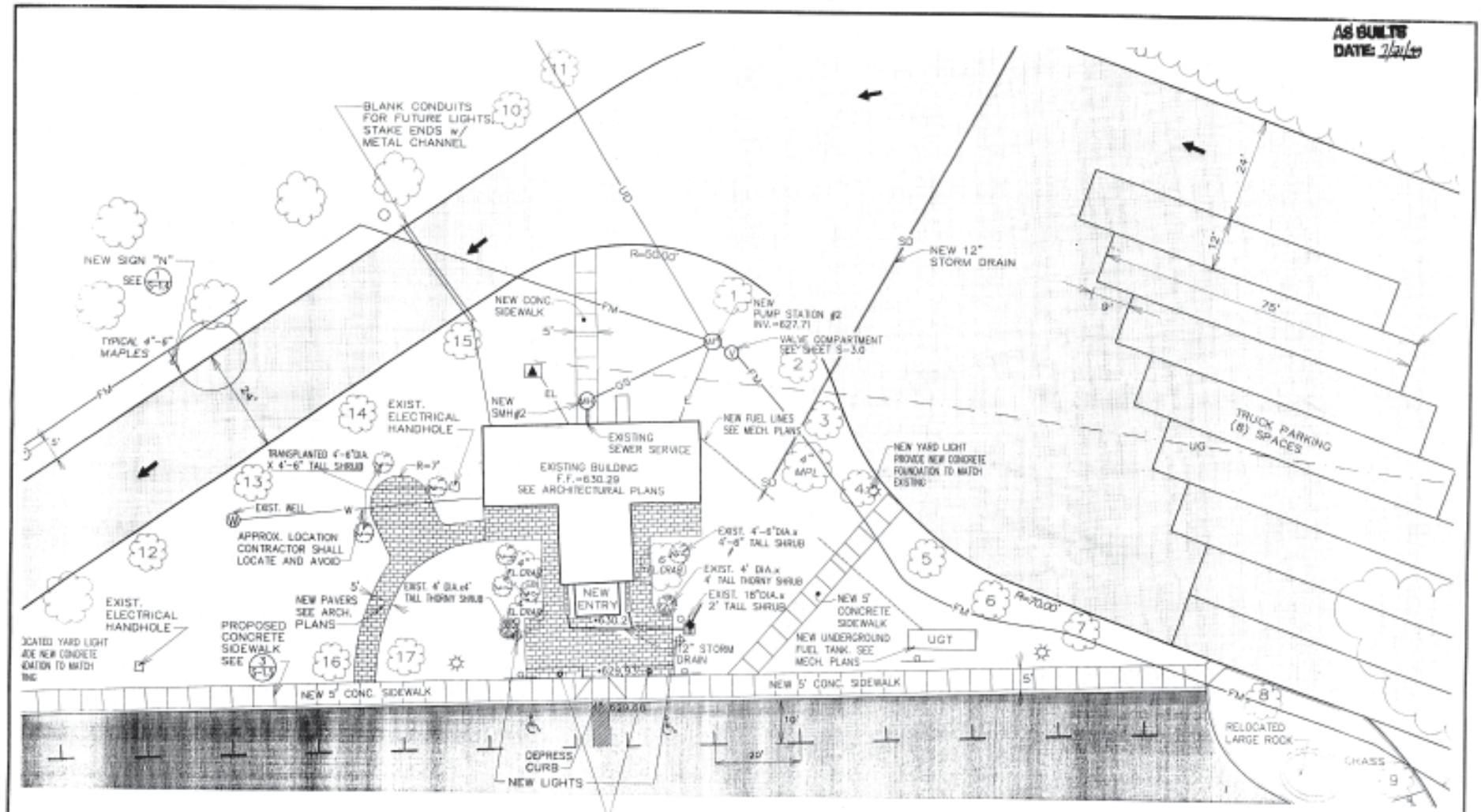
Photo #34:	Drinking fountain

APPENDIX B:
SITE PLANS

Site Plan

EMG	**Source:**	**Project Number:** **106686.14R-018.305**
N	**The north arrow indicator is an approximation of 0° North.**	**Project Name:** **I-89 North & South Information Centers**
		On-Site Date: **October 6, 2014**

AS BUILTS
DATE: 7/24/97



NOTES:

1.) RELOCATE NUMBERED EXISTING TREES IN THE LOCATION DESIGNATED ON THE DEMOLITION PLAN SHEET S-2.0. REFER TO SPECIFICATIONS FOR TREE TRANSPLANTING PROCEDURE. TREES THAT DO NOT HAVE A NUMBER DESIGNATION WILL REMAIN.

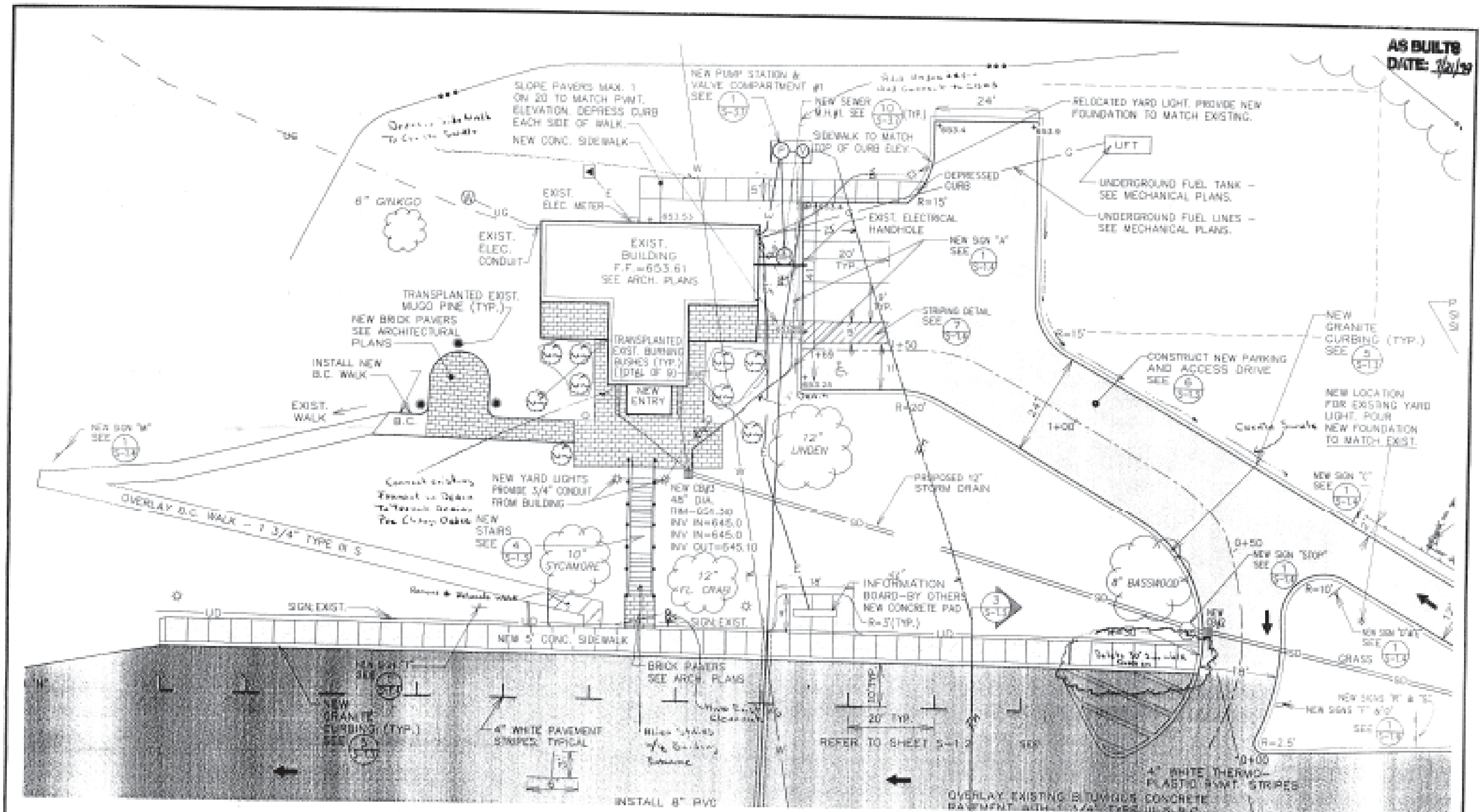
SCANNED

STATE OF VERMONT
DEPARTMENT OF BUILDINGS AND GENERAL SERVICES
AGENCY OF ADMINISTRATION
MONTPELIER, VERMONT

GEORGIA INTERSTATE 89 REST AREAS
NORTHBOUND AND SOUTHBOUND

DATE:	SCALE: 1"=10'	REVISIONS	DRAWING NAME: SOUTHBOUND LANDSCAPING PLAN
DRAWN BY:	PROJECT NO. 97045		DRAWING NO.: S-2.2
CHECKED BY:			

WW-6-0427



SCANNED

STATE OF VERMONT
DEPARTMENT OF BUILDINGS AND GENERAL SERVICES
AGENCY OF ADMINISTRATION
MONTPELIER, VERMONT

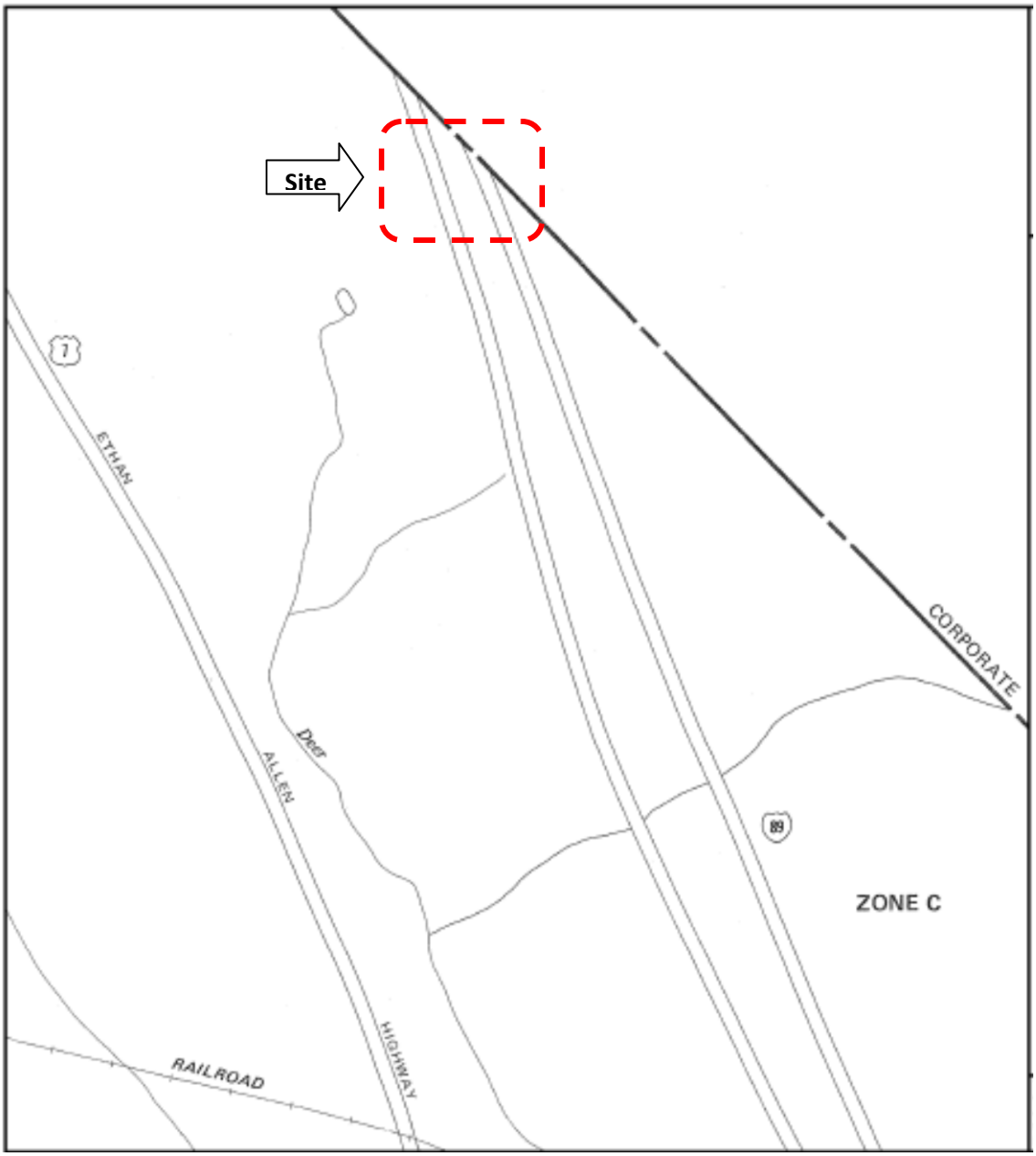
GEORGIA INTERSTATE 89 REST AREAS NORTHBOUND AND SOUTHBOUND

DATE:	SCALE:	REVISIONS:	DRAWING NAME
AUG. 2, 1996			NORTHBOUND LANDSCAPING PLAN
DRAWN BY:	PROJECT NO.		DRAWING NO.:
CHECKED BY:			S-12

WW-6-0427

APPENDIX C:
SUPPORTING DOCUMENTATION

Flood Map



EMG	**Source:** **FEMA Map Panel # 500217 0004A** **Dated: September 16, 1981**	**Project Number:** **106686.14R-018.305**
N		**Project Name:** **I-89 North & South Information Centers**
	Not drawn to scale. The north arrow indicator is an approximation of 0° North.	**On-Site Date:** **October 6, 2014**

Mechanical Equipment List

Project: I-89 North & South Information Centers
Location: Georgia
Project #: 106686.14R-018.305
Date: 10/06/2014 **Prepared by:** Ralph Manglass Jr. PE

Mechanical Equipment Inventory										
Equipment	Manufacturer	Location	Model/ Type	Capacity	Serves	Operating Hours/Year	Age	EUL	RUL	Remarks
Propane Hot Air furnace	Trane	SB		120 MBH	All	2000	10	25	15	
Propane Hot Air furnace	York	NB		120 MBH	All	2000	10	25	15	
Exhaust fan	Unknown	NB	In-line	800 CFM	Restrooms	4380	10	25	15	
Exhaust fan	Unknown	SB	In-line	800 CFM	Restrooms	4380	10	25	15	
Window AC	GE	SB		10 MBH	Lobby	1200	3	10	7	
Window AC	GE	NB		10 MBH	Lobby	1200	3	10	7	
Water heater	Ariston	SB	Point of use	1500 W	DHW	2200	2	10	8	
Water heater	Ariston	NB	Point of use	1500 W	DHW	2200	2	10	8	
Well Pump	Goulds	SB	Submersible	1/2 HP	Water	700	Unknown	20	Unknown	
Well Pump	Goulds	NB	Submersible	1/2 HP	Water	700	Unknown	20	Unknown	
Sewage pump	Unknown	SB	Grinder	7.5 HP	Sewerage	200	15	20	5	City owned
Sewage pump	Unknown	SB	Grinder	7.5 HP	Sewerage	200	15	20	5	City owned
Sewage pump	Unknown	NB	Grinder	3 HP	Sewerage	200	15	20	5	City owned
Sewage pump	Unknown	NB	Grinder	3 HP	Sewerage	200	15	20	5	City owned
Water Cooler	Halsey Taylor	SB	ADA	370 W	Drinking	200	5	15	10	
Water Cooler	Halsey Taylor	NB	ADA	370 W	Drinking	200	5	15	10	

APPENDIX D:
EMG ABBREVIATED ACCESSIBILITY CHECKLIST

Property Name: I-89 North & South Information Centers

Date: October 6, 2014

EMG Abbreviated Accessibility Checklist					
	Building History	**Yes**	**No**	**N/A**	**Comments**
1.	Has the management previously completed an ADA review?	✓			1998 Renovation Plans
2.	Have any ADA improvements been made to the property?	✓			1998 Rnovations
3.	Does a Barrier Removal Plan exist for the property?			✓	
4.	Has the Barrier Removal Plan been reviewed/approved by an arms-length third party such as an engineering firm, architectural firm, building department, other agencies, etc.?			✓	
5.	Has building ownership or management received any ADA related complaints that have not been resolved?		✓		
6.	Is any litigation pending related to ADA issues?		✓		
	Parking	**Yes**	**No**	**N/A**	**Comments**
1.	Are there sufficient parking spaces with respect to the total number of reported spaces?	✓			
2.	Are there sufficient van-accessible parking spaces available (96” wide/ 96” aisle for van)?	✓			
3.	Are accessible spaces marked with the International Symbol of Accessibility? Are there signs reading “Van Accessible” at van spaces?	✓			
4.	Is there at least one accessible route provided within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading zones and public sidewalks?			✓	
5.	Do curbs on the accessible route have depressed, ramped curb cuts at drives, paths, and drop-offs?	✓			
6.	Does signage exist directing you to accessible parking and an accessible building entrance?	✓			
	Ramps	**Yes**	**No**	**N/A**	**Comments**
1.	If there is a ramp from parking to an accessible building entrance, does it meet slope requirements? (1:12)			✓	
2.	Are ramps longer than 6 ft complete with railings on both sides?			✓	
3.	Is the width between railings at least 36 inches?			✓	

EMG Abbreviated Accessibility Checklist					
4.	Is there a level landing for every 30 ft horizontal length of ramp, at the top and at the bottom of ramps and switchbacks?			✓	
	Entrances/Exits	**Yes**	**No**	**N/A**	**Comments**
1.	Is the main accessible entrance doorway at least 32 inches wide?	✓			
2.	If the main entrance is inaccessible, are there alternate accessible entrances?		✓		
3.	Can the alternate accessible entrance be used independently?		✓		
4.	Is the door hardware easy to operate (lever/push type hardware, no twisting required, and not higher than 48 inches above the floor)?	✓			
5.	Are main entry doors other than revolving door available?	✓			
6.	If there are two main doors in series, is the minimum space between the doors 48 inches plus the width of any door swinging into the space?	✓			
	Paths of Travel	**Yes**	**No**	**N/A**	**Comments**
1.	Is the main path of travel free of obstruction and wide enough for a wheelchair (at least 36 inches wide)?	✓			
2.	Does a visual scan of the main path reveal any obstacles (phones, fountains, etc.) that protrude more than 4 inches into walkways or corridors?		✓		
3.	Are floor surfaces firm, stable, and slip resistant (carpets wheelchair friendly)?	✓			
4.	Is at least one wheelchair-accessible public telephone available?			✓	
5.	Are wheelchair-accessible facilities (toilet rooms, exits, etc.) identified with signage?	✓			
6.	Is there a path of travel that does not require the use of stairs?	✓			
7.	If audible fire alarms are present, are visual alarms (strobe light alarms) also installed in all common areas?			✓	
	Elevators	**Yes**	**No**	**N/A**	**Comments**
1.	Do the call buttons have visual signals to indicate when a call is registered and answered?			✓	No elevators.
2.	Is the “UP” button above the “DOWN” button?			✓	
3.	Are there visual and audible signals inside cars indicating floor change?			✓	

EMG Abbreviated Accessibility Checklist					
4.	Are there standard raised and Braille marking on both jambs of each host way entrance?			✓	
5.	Do elevator doors have a reopening device that will stop and reopen a car door if an object or a person obstructs the door?			✓	
6.	Do elevator lobbies have a visual and audible indicators of car arrival?			✓	
7	Does the elevator interior provide sufficient wheelchair turning area (51" x 68")?			✓	
8.	Are elevator controls low enough to be reached from a wheelchair (48 inches front approach/54 inches side approach)?			✓	
9.	Are elevator control buttons designated by Braille and by raised standard alphabet characters (mounted to the left of the button)?			✓	
10.	If a two-way emergency communication system is provided within the elevator cab, is it usable without voice communication?			✓	
	Restrooms	**Yes**	**No**	**N/A**	**Comments**
1.	Are common area public restrooms located on an accessible route?	✓			
2.	Are pull handles push/pull or lever type?	✓			
3.	Are there audible and visual fire alarm devices in the toilet rooms?			✓	
4.	Are corridor access doors wheelchair-accessible (at least 32 inches wide)?	✓			
5.	Are public restrooms large enough to accommodate a wheelchair turnaround (60" turning diameter)?	✓			
6.	In unisex toilet rooms, are there safety alarms with pull cords?		✓		
7.	Are stall doors wheelchair accessible (at least 32" wide)?	✓			
8.	Are grab bars provided in toilet stalls?	✓			
9.	Are sinks provided with clearance for a wheelchair to roll under (29" clearance)?	✓			
10.	Are sink handles operable with one hand without grasping, pinching or twisting?	✓			
11.	Are exposed pipes under sink sufficiently insulated against contact?	✓			
12.	Are soap dispensers, towel, etc. reachable (48" from floor for frontal approach, 54" for side approach)?	✓			

EMG Abbreviated Accessibility Checklist					
13.	Is the base of the mirror no more than 40” from the floor?	✓			

APPENDIX E:
PRE SURVEY QUESTIONNAIRE AND DOCUMENTATION REQUEST CHECKLIST

PROPERTY CONDITION ASSESSMENT : PRE-SURVEY QUESTIONNAIRE

This questionnaire should be completed by someone knowledgeable about the subject property. *The completed form should be presented to EMG's Field Observer on the day of the site visit.* If the form is not completed, EMG's Project Manager will require *additional time* during the on-site visit with such a knowledgeable person in order to complete the questionnaire. During the site visit, EMG's Field Observer may ask for details associated with selected questions. This questionnaire will be utilized as an exhibit in EMG's final Property Condition Report.

Name of person completing questionnaire: Alan Gerreau

Association with property: MainT

Length of association with property: 16 yrs.

Date Completed: 10/9/14

Phone Number: 802 598-8264

Building Name: Geo S/B info

Directions: Please answer all questions to the best of your knowledge and in good faith. Please provide additional details in the Comments column, or backup documentation for any *Yes* responses.

	INSPECTIONS	DATE LAST INSPECTED	LIST ANY OUTSTANDING REPAIRS REQUIRED
1	Elevators	N/A	
2	HVAC, Mechanical, Electric, Plumbing		
3	Life-Safety/Fire	9/2014	
4	Roofs	Not known	

	QUESTION	RESPONSE
5	List any major capital improvement within the last three years.	None
6	List any major capital expenditures planned for the next year.	Unknow
7	What is the age of the roof(s)?	?

8	What building systems (HVAC, roof, interior/exterior finishes, paving, etc.) are the responsibilities of contractors to replace?	?

Mark the column corresponding to the appropriate response. Please provide additional details in the Comments column, or backup documentation for any *Yes* responses. Note: **NA** indicates *"Not Applicable"*, **Unk** indicates *"Unknown"*

	QUESTION	RESPONSE				COMMENTS
		Y	N	NA	Unk	
9	Are there any unresolved building, or fire code issues?		✓			
10	Are there any "down" or unusable units?		✓			
11	Are there any problems with erosion, stormwater drainage or areas of paving that do not drain?		✓			repaird in 2012
12	Is the property served by a private water well?	✓				
13	Is the property served by a private septic system or other waste treatment systems?		✓			
14	Are there any problems with foundations or structures?		✓			
15	Is there any water infiltration in basements or crawl spaces?		✓	✓		
16	Are there any wall, or window leaks?		✓			
17	Are there any roof leaks?		✓			
18	Is the roofing covered by a warranty or bond?		✓			
19	Are there any poorly insulated areas?				✓	
20	Is Fire Retardant Treated (FRT) plywood used?		✓			
21	Is exterior insulation and finish system (EIFS) or a synthetic stucco finish used?				✓	
22	Are there any problems with the utilities, such as inadequate capacities?		✓			

Mark the column corresponding to the appropriate response. Please provide additional details in the Comments column, or backup documentation for any *Yes* responses. Note: **NA** indicates *"Not Applicable"*, **Unk** indicates *"Unknown"*

	QUESTION	RESPONSE				COMMENTS
		Y	N	NA	Unk	
23	Are there any problems with the landscape irrigation systems?		✓			
24	Has a termite/wood boring insect inspection been performed within the last year?		✓			
25	Do any of the HVAC systems use R-11, 12, or 22 refrigerants?		✓			
26	Has any part of the property ever contained visible suspect mold growth?				✓	
27	Is there a mold Operations and Maintenance Plan?				✓	
28	Have there been indoor air quality or mold related complaints from tenants?		✓			
29	Is polybutylene piping used?					
30	Are there any plumbing leaks or water pressure problems?		✓			
31	Are there any leaks or pressure problems with natural gas service?				✓	
32	Does any part of the electrical system use aluminum wiring?					
33	Do Residential units have a less than 60-Amp service?			✓		
34	Do any Commercial units have less than 200-Amp service?			✓		
35	Are there any recalled fire sprinkler heads (Star, GEM, Central, Omega)?			✓		
36	Is there any pending litigation concerning the property?				✓	
37	Has the management previously completed an ADA review?	✓				
38	Have any ADA improvements been made to the property?	✓				
39	Does a Barrier Removal Plan exist for the property?				✓	

Mark the column corresponding to the appropriate response. Please provide additional details in the Comments column, or backup documentation for any *Yes* responses. Note: **NA** indicates *"Not Applicable"*, **Unk** indicates *"Unknown"*						
QUESTION		**RESPONSE**				**COMMENTS**
		Y	N	NA	Unk	
40	Has the Barrier Removal Plan been approved by an arms-length third party?				✓	
41	Have there been any ADA or Section 504 related complaints?				✓	
42	Does elevator equipment require upgrades to meet ADA standards?			✓		
43	Are there any problems with exterior lighting?		✓			
44	Are there any other significant issues/hazards with the property?		✓			
45	Are there any unresolved construction defects at the property?		✓			

On the day of the site visit, provide EMG's Field Observer access to all of the available documents listed below. Provide copies if possible.

INFORMATION REQUIRED

1. All available construction documents (blueprints) for the original construction of the building or for any tenant improvement work or other recent construction work.

2. A site plan, preferably 8 1/2" X 11", which depicts the arrangement of buildings, roads, parking stalls, and other site features.

3. For commercial properties, provide a tenant list which identifies the names of each tenant, vacant tenant units, the floor area of each tenant space, and the gross and net leasable area of the building(s).

4. For apartment properties, provide a summary of the apartment unit types and apartment unit type quantities, including the floor area of each apartment unit as measured in square feet.

5. For hotel or nursing home properties, provide a summary of the room types and room type quantities.

6. Copies of Certificates of Occupancy, building

8. The company name, phone number, and contact person of all outside vendors who serve the property, such as mechanical contractors, roof contractors, fire sprinkler or fire extinguisher testing contractors, and elevator contractors.

9. A summary of recent (over the last 5 years) capital improvement work which describes the scope of the work and the estimated cost of the improvements. Executed contracts or proposals for improvements. Historical costs for repairs, improvements, and replacements.

10. Records of system & material ages (roof, MEP, paving, finishes, furnishings).

11. Any brochures or marketing information.

12. Appraisal, either current or previously prepared.

13. Current occupancy percentage and typical turnover rate records (for commercial and apartment properties).

14. Previous reports pertaining to the physical condition of property.

permits, fire or health department inspection reports, elevator inspection certificates, roof or HVAC warranties, or any other similar, relevant documents. 7. The names of the local utility companies which serve the property, including the water, sewer, electric, gas, and phone companies.	15. ADA survey and status of improvements implemented. 16. Current / pending litigation related to property condition.

Your timely compliance with this request is greatly appreciated.

Your timely compliance with this request is greatly appreciated.

PROPERTY CONDITION ASSESSMENT :PRE-SURVEY QUESTIONNAIRE

This questionnaire should be completed by someone knowledgeable about the subject property. *The completed form should be presented to EMG's Field Observer on the day of the site visit.* If the form is not completed, EMG's Project Manager will require *additional time* during the on-site visit with such a knowledgeable person in order to complete the questionnaire. During the site visit, EMG's Field Observer may ask for details associated with selected questions. This questionnaire will be utilized as an exhibit in EMG's final Property Condition Report.

Name of person completing questionnaire: Alan Garceau

Association with property: Maint.

Length of association with property: 16 yrs

Date Completed: 10/9/14

Phone Number: 802-598-8264

Building Name: Geo N/B info

Directions: Please answer all questions to the best of your knowledge and in good faith. Please provide additional details in the Comments column, or backup documentation for any *Yes* responses.

	Inspections	Date Last Inspected	List Any Outstanding Repairs Required
1	Elevators	N/A	
2	HVAC, Mechanical, Electric, Plumbing		
3	Life-Safety/Fire	Montly	
4	Roofs	unknown	

	Question	Response
5	List any major capital improvement within the last three years.	N/A
6	List any major capital expenditures planned for the next year.	Unknown
7	What is the age of the roof(s)?	Unknown

8	What building systems (HVAC, roof, interior/exterior finishes, paving, etc.) are the responsibilities of contractors to replace?	Paving

Mark the column corresponding to the appropriate response. Please provide additional details in the Comments column, or backup documentation for any *Yes* responses. Note: **NA** indicates *"Not Applicable"*, **Unk** indicates *"Unknown"*

	QUESTION	RESPONSE				COMMENTS
		Y	N	NA	Unk	
9	Are there any unresolved building, or fire code issues?		✓			
10	Are there any "down" or unusable units?		✓			
11	Are there any problems with erosion, stormwater drainage or areas of paving that do not drain?		✓			
12	Is the property served by a private water well?	✓				
13	Is the property served by a private septic system or other waste treatment systems?		✓			
14	Are there any problems with foundations or structures?		✓			
15	Is there any water infiltration in basements or crawl spaces?			✓		
16	Are there any wall, or window leaks?		✓			
17	Are there any roof leaks?		✓			
18	Is the roofing covered by a warranty or bond?		✓			
19	Are there any poorly insulated areas?				✓	
20	Is Fire Retardant Treated (FRT) plywood used?		✓			
21	Is exterior insulation and finish system (EIFS) or a synthetic stucco finish used?					
22	Are there any problems with the utilities, such as inadequate capacities?		✓			

Mark the column corresponding to the appropriate response. Please provide additional details in the Comments column, or backup documentation for any *Yes* responses. Note: **NA** indicates *"Not Applicable"*, **Unk** indicates *"Unknown"*

	QUESTION	RESPONSE				COMMENTS
		Y	N	NA	Unk	
23	Are there any problems with the landscape irrigation systems?		✓			
24	Has a termite/wood boring insect inspection been performed within the last year?				✓	
25	Do any of the HVAC systems use R-11, 12, or 22 refrigerants?		✓			
26	Has any part of the property ever contained visible suspect mold growth?		✓			
27	Is there a mold Operations and Maintenance Plan?				✓	
28	Have there been indoor air quality or mold related complaints from tenants?		✓			
29	Is polybutylene piping used?					
30	Are there any plumbing leaks or water pressure problems?		✓			
31	Are there any leaks or pressure problems with natural gas service?		✓			
32	Does any part of the electrical system use aluminum wiring?				✓	
33	Do Residential units have a less than 60-Amp service?			✓		
34	Do any Commercial units have less than 200-Amp service?			✓		
35	Are there any recalled fire sprinkler heads (Star, GEM, Central, Omega)?			✓		
36	Is there any pending litigation concerning the property?				✓	
37	Has the management previously completed an ADA review?	✓				as required
38	Have any ADA improvements been made to the property?	✓				As required
39	Does a Barrier Removal Plan exist for the property?				✓	

Mark the column corresponding to the appropriate response. Please provide additional details in the Comments column, or backup documentation for any *Yes* responses. Note: **NA** indicates *"Not Applicable"*, **Unk** indicates *"Unknown"*						
QUESTION		**RESPONSE**				**COMMENTS**
		Y	N	NA	Unk	
40	Has the Barrier Removal Plan been approved by an arms-length third party?				✓	
41	Have there been any ADA or Section 504 related complaints?				✓	
42	Does elevator equipment require upgrades to meet ADA standards?			✓		
43	Are there any problems with exterior lighting?		✓			
44	Are there any other significant issues/hazards with the property?		✓			
45	Are there any unresolved construction defects at the property?		✓			

On the day of the site visit, provide EMG's Field Observer access to all of the available documents listed below. Provide copies if possible.

INFORMATION REQUIRED

1. All available construction documents (blueprints) for the original construction of the building or for any tenant improvement work or other recent construction work.

2. A site plan, preferably 8 1/2" X 11", which depicts the arrangement of buildings, roads, parking stalls, and other site features.

3. For commercial properties, provide a tenant list which identifies the names of each tenant, vacant tenant units, the floor area of each tenant space, and the gross and net leasable area of the building(s).

4. For apartment properties, provide a summary of the apartment unit types and apartment unit type quantities, including the floor area of each apartment unit as measured in square feet.

5. For hotel or nursing home properties, provide a summary of the room types and room type quantities.

6. Copies of Certificates of Occupancy, building

8. The company name, phone number, and contact person of all outside vendors who serve the property, such as mechanical contractors, roof contractors, fire sprinkler or fire extinguisher testing contractors, and elevator contractors.

9. A summary of recent (over the last 5 years) capital improvement work which describes the scope of the work and the estimated cost of the improvements. Executed contracts or proposals for improvements. Historical costs for repairs, improvements, and replacements.

10. Records of system & material ages (roof, MEP, paving, finishes, furnishings).

11. Any brochures or marketing information.

12. Appraisal, either current or previously prepared.

13. Current occupancy percentage and typical turnover rate records (for commercial and apartment properties).

14. Previous reports pertaining to the physical condition of property.

permits, fire or health department inspection reports, elevator inspection certificates, roof or HVAC warranties, or any other similar, relevant documents. 7. The names of the local utility companies which serve the property, including the water, sewer, electric, gas, and phone companies.	15. ADA survey and status of improvements implemented. 16. Current / pending litigation related to property condition.

Your timely compliance with this request is greatly appreciated.

Your timely compliance with this request is greatly appreciated.

Energy Audit
Pre-Survey Questionnaire

This questionnaire must be completed by the property owner, the owner's designated representative, or someone knowledgeable about the subject property. If the form is not completed, EMG's Project Manager will require ***additional time*** during the on-site visit with such a knowledgeable person in order to complete the questionnaire. During the site visit, EMG's Field Observer may ask for details associated with selected questions. This questionnaire will be utilized as an exhibit in EMG's final report.

Name of Institution:	
Name of Building: GEORGIA NORTHBOUND R.A	Building #:

Unk = Unknown, NA = Not Applicable	Yes	No	NA	Unk	Comments
1. Are the plumbing fixtures Low Flow *(Below 2.0GPM, 1.6GPF)*	☒	☐	☐	☐	
2. Are there any vacant buildings or significant building areas?	☐	☒	☐	☐	
3. Do tenants pay for utilities at leased properties?				X	
4. Does the owner pay for exterior site lighting electricity?	☐	☐	☐	☒	

Site Information					
Primary Heating System & Fuel?	Hot Air Propane				
Secondary Heating System &Fuel?					
If Oil Used For Heating- Tank Capacity	— Gallons		No. of Tanks		
Primary Cooling System & Capacity?	Portable window				
Year of Construction?					
No. of Stories?	1 Floors				
Total Site Area?	Acres				
Total Building Area?	Sqft				
Area Heated (%)	100 %				
Area Cooled (%)	50 %				
Total Conditioned Area (%)	%				
	Elec.	Natural Gas	Propane	No.2 Oil	Dist. Steam
Primary Heating Fuel?	☐	☐	☒	☐	☐
Secondary Heating Fuel?	☐	☐	☐	☐	☐
Domestic Water Heater Fuel?	☒	☐	☐	☐	

Building Occupancy/Schedule		
Estimated No. of Residence		
No. of Staff Members	1	
Standard Staff Work Timing	7Am 9Pm : AM/PM - : AM/PM	
Maintenance Staff Hours	0 : AM/PM - : AM/PM as needed	
Apartment Type	**Qty**	**No. of Bathrooms**
No. of Apts. In Building:	—	
No. of Efficiency Apts:	—	1
No. of 1 Bedroom Apts:	—	1 // 1.5
No. of 2 Bedroom Apts:	—	1 // 1.5 // 2
No. of 3 Bedroom Apts:	—	1 // 1.5 // 2
No. of 4 Bedroom Apts:	—	1 // 1.5 // 2 // 3
No. of 5 Bedroom Apts:	—	1 // 1.5 // 2 // 3
No. of 6 Bedroom Apts:	—	1 // 1.5 // 2 // 3
No. of Vacant Apts:	—	
No. of Down Apts:	—	

Energy Audit
Pre-Survey Questionnaire

Building Structure							
		Y/N		Y/N		Y/N	Additional Comments?
Roof Type:	Pitched?	Y	Flat		Both		
Attic Insulation:	Batt	Y	Cellulose		Fiberglass		
Window Frame:	Wooden	Y	Vinyl		Metal		
Window Glazing:	Single		Double	Y	Triple		
Structure	Wooden	Y	Metal		Conc.		

Building Lighting			
Type of Linear Fluorescent Lamps? *(T8/T12)*	T8	Exterior Lighting Control *(Timer/Photocell)*	Timer
Type of Common Lamps? *(Incan/CFLs)*	CFLs	Exterior Light Timing	Hr
Lighting Sensors? *(Y/N)*	N	EXIT Lights (Incan/Fluor/LED)	

Other Systems				
	Qty		Selection	Additional Comments?
# of Elevators	—	Hydraulic/Traction	—	
# of Electric Meters	1	Master/Sub	—	
# of Nat. Gas Meters	—	Resi/Commercial/Indust.	—	
# of Water Meters	1			
# of Backup Generator	No	Generator Fuel?	—	

Preventive Maintenance of Mechanical System			
Systems	**Annual Professional Maintenance**		**Seldom or Never Maintained**
Tenant Space Heating Systems *(Furnace/Boilers/Heat pumps)*	Furnace ☐ Y		☐
Tenant Space Cooling Systems *(Condensers/Window AC)*	Window ☐ N		☐
Domestic Water Heaters	Y ☐ N		☐

Building Appliances		
	Value	Additional Comments?
Percentage of Energy Star Certified Refrigerators (%)	0 %	
Cooking Range Type (Electric/Gas/Propane)	0	
Laundry System (Leased/Owned)	0	
No. of Washers	0	
No. of Dryers	0	

Issues or Concerns That EMG Should Know About?	
1.	
2.	
3.	

Items Provided to EMG Auditors				
	Yes	No	N/A	Additional Comments?
Access to 10% Residential Apartments				
Access to All Mechanical Spaces	✓			
Access to Roof/Attic Space			✓	
Access to Building As-Built Drawings	✓			
Access to last 12/24 Months Common Area Utility Data			✓	
Access to last 12/24 Months Tenant Utility Data			✓	
Access to last 12/24 Month Water & Sewer Bills			✓	

Energy Audit
Pre-Survey Questionnaire

This questionnaire must be completed by the property owner, the owner's designated representative, or someone knowledgeable about the subject property. If the form is not completed, EMG's Project Manager will require ***additional time*** during the on-site visit with such a knowledgeable person in order to complete the questionnaire. During the site visit, EMG's Field Observer may ask for details associated with selected questions. This questionnaire will be utilized as an exhibit in EMG's final report.

Name of Institution:	
Name of Building: GEORGIA SOUTHBOUND R.A.	Building #:

Unk = Unknown, NA = Not Applicable	Yes	No	NA	Unk	Comments
1. Are the plumbing fixtures Low Flow *(Below 2.0GPM, 1.6GPF)*	☑	☐	☐	☐	
2. Are there any vacant buildings or significant building areas?	☐	☑	☐	☐	
3. Do tenants pay for utilities at leased properties?				✓	
4. Does the owner pay for exterior site lighting electricity?	☐	☐	☐	☑	

Site Information					
Primary Heating System & Fuel?	Hot Air Propane				
Secondary Heating System &Fuel?	—				
If Oil Used For Heating- Tank Capacity	— Gallons		No. of Tanks		
Primary Cooling System & Capacity?	Portable Window				
Year of Construction?					
No. of Stories?	1 Floors				
Total Site Area?	Acres				
Total Building Area?	Sqft				
Area Heated (%)	100 %				
Area Cooled (%)	50 %				
Total Conditioned Area (%)	%				
	Elec.	Natural Gas	Propane	No.2 Oil	Dist. Steam
Primary Heating Fuel?	☐	☐	☑	☐	☐
Secondary Heating Fuel?	☐	☐	☐	☐	☐
Domestic Water Heater Fuel?	☒	☐	☐	☐	

Building Occupancy/Schedule		
Estimated No. of Residence		
No. of Staff Members	1	
Standard Staff Work Timing	7AM 9PM : AM/PM - : AM/PM	
Maintenance Staff Hours	0 : AM/PM - : AM/PM as needed	
Apartment Type	**Qty**	**No. of Bathrooms**
No. of Apts. In Building:	—	
No. of Efficiency Apts:	—	1
No. of 1 Bedroom Apts:	—	1 // 1.5
No. of 2 Bedroom Apts:	—	1 // 1.5 // 2
No. of 3 Bedroom Apts:	—	1 // 1.5 // 2
No. of 4 Bedroom Apts:	—	1 // 1.5 // 2 // 3
No. of 5 Bedroom Apts:	—	1 // 1.5 // 2 // 3
No. of 6 Bedroom Apts:	—	1 // 1.5 // 2 // 3
No. of Vacant Apts:	—	
No. of Down Apts:	—	

Energy Audit
Pre-Survey Questionnaire

Building Structure							
		Y/N		Y/N		Y/N	Additional Comments?
Roof Type:	Pitched?	Y	Flat		Both		
Attic Insulation:	Batt	Y	Cellulose		Fiberglass		
Window Frame:	Wooden	Y	Vinyl		Metal		
Window Glazing:	Single		Double	Y	Triple		
Structure	Wooden	Y	Metal		Conc.		

Building Lighting			
Type of Linear Fluorescent Lamps? *(T8/T12)*	T8	Exterior Lighting Control *(Timer/Photocell)*	Timer
Type of Common Lamps? *(Incan/CFLs)*	CFLs	Exterior Light Timing	Hr
Lighting Sensors? *(Y/N)*	N	EXIT Lights (Incan/Fluor/LED)	

Other Systems				
	Qty		Selection	Additional Comments?
# of Elevators	—	Hydraulic/Traction	—	
# of Electric Meters	1	Master/Sub	—	
# of Nat. Gas Meters	—	Resi/Commercial/Indust.	—	
# of Water Meters	1		—	
# of Backup Generator	—	Generator Fuel?	—	

Preventive Maintenance of Mechanical System		
Systems	**Annual Professional Maintenance**	**Seldom or Never Maintained**
Tenant Space Heating Systems *(Furnace/Boilers/Heat pumps)*	Furnace ☐	☐
Tenant Space Cooling Systems *(Condensers/Window AC)*	Window ☐	☐
Domestic Water Heaters	Y ☐ N	☐

Building Appliances		
	Value	Additional Comments?
Percentage of Energy Star Certified Refrigerators (%)	0 %	
Cooking Range Type (Electric/Gas/Propane)	0	
Laundry System (Leased/Owned)	0	
No. of Washers	0	
No. of Dryers	0	

Issues or Concerns That EMG Should Know About?	
1.	
2.	
3.	

Items Provided to EMG Auditors				
	Yes	No	N/A	Additional Comments?
Access to 10% Residential Apartments			✓	
Access to All Mechanical Spaces	✓		✓	
Access to Roof/Attic Space	DNR	✓		
Access to Building As-Built Drawings	✓			
Access to last 12/24 Months Common Area Utility Data			✓	
Access to last 12/24 Months Tenant Utility Data			✓	
Access to last 12/24 Month Water & Sewer Bills			✓	

REQUEST FOR DOCUMENTATION

On the day of the site visit, provide EMG's Field Observer the documents listed below. Signify which documents will be copied, available for review at the site, not available, or not applicable by placing a check mark in the appropriate columns. Also provide this completed checklist.

		Copies Provided	Reviewed at Site	Not Available	Not Applicable
1	**Maintenance Contractor List.** Provide the company name, phone number, and contact person of all maintenance contractors who serve the property, such as mechanical contractors, roof contractors, fire sprinkler and fire alarm testing contractors, and elevator contractors.	✓			
2	**Construction Documents (Blueprints).** Provide all available construction documents for the original construction of the building or for any tenant improvement work or other recent construction work.				
3	**Site plan.** Provide a site plan, preferably 8 1/2" X 11", which depicts the arrangement of buildings, roads, parking stalls, and other site features.				
4	**Certificates of Occupancy** and original **Building Permits**.				
5	**Tenant List.** For commercial properties, provide a tenant list, which identifies the names of each tenant, vacant tenant units, the floor area of each tenant space, and the gross and net leasable area of the building(s).				
6	**Apartment Unit Summary.** For apartment properties, provide a summary of the apartment unit types and quantities, including the floor area of each apartment unit as measured in square feet.				
7	**Hotel & Nursing Home Room Summary.** For hotel or nursing home properties, provide a summary of the room types and room type quantities, including the floor area of each room type.				
8	**Occupancy Percentage.** Provide the current occupancy percentage and typical turnover rate records (for commercial and apartment properties).				
9	**Inspection Documents and Certificates.** Fire, building, and health department inspection reports and elevator inspection certificates.				
10	**Warranties.** Roof and HVAC warranties, or any other similar relevant documents.				
11	**Utility Companies.** The names of the local utility companies which serve the property, including the water, sewer, electric, gas, and phone companies.				
12	**Capital Improvement Summary.** A summary of recent (over the last 5 years) capital improvement work which describes the scope of the work and the cost of the improvements.				
13	**Proposed Improvements.** Pending contracts or proposals for future improvements.				
14	**Historical Costs.** Costs for repairs, improvements, and replacements.				
15	**Records.** Records of system & material ages (roof, MEP, paving, finishes, furnishings).				
16	**Brochures or Marketing Information.**				
17	**Appraisal**, either current or previously prepared.				
18	**Previous reports** pertaining to the physical condition of property.				
19	**ADA survey** and status of improvements implemented.				
20	**Litigation.** Current / pending litigation related to property condition.				

APPENDIX F:
TERMINOLOGY

The following are definitions of terms utilized in this report.

TERMINOLOGY	
Actual Knowledge	Information or observations known first hand by EMG.
ADA	The Americans with Disabilities Act
Ancillary Structures	Structures that are not the primary improvements of the Property but which may have been constructed to provide support uses.
Appropriate Inquiry	A requests for information from appropriate entity conducted by a Freedom of Information Letter (FOIL), verbal request, or by written request made either by fax, electronic mail, or mail. A good-faith one time effort conducted to obtain the information in light of the time constraints to deliver the FCA.
ASTM	American Society for Testing and Materials
Base Building	That portion of the building (common area) and its systems that are not typically subject to improvements to suit tenant requirements.
Baseline	A minimum scope level of observation, inquiry, research, documentation review, and cost estimating for conducting a Facility Condition Assessment as normally conducted by EMG.
BOMA	Building Owners & Managers Association
Building	Referring to the primary building or buildings on the Property, which are within the scope of the FCA as defined under Section 2.
Building Codes	A compilation of rules adopted by the municipal, county and/or state governments having jurisdiction over the Property that govern the property's design &/or construction of buildings.
Building Department Records	Information concerning the Property's compliance with applicable Building, Fire and Zoning Codes that is readily available for use by EMG within the time frame required for production of the Property Condition Assessment.
Building Systems	Interacting or interdependent components that comprise a building such as structural, roofing, side wall, plumbing, HVAC, water, sanitary sewer and electrical systems.
BUR	Built Up Roof
Client	The entity identified on the cover of this document as the Client.
Commercial Real Estate	Real property used for industrial, retail, office, agricultural, other commercial, medical, or educational purposes, and property used for residential purposes that has more than four (4) residential dwelling units.
Commercial Real Estate Transaction	The transfer of either a mortgage, lease, or deed; the re-financing of a commercial property by an existing mortgagee; or the transferring of an equity interest in commercial property.
Component	A piece of equipment or element in its entirety that is part of a system.
Consultant	The entity or individual that prepares the Facility Condition Assessment and that is responsible for the observance of, and reporting on the physical condition of Commercial Property.
Dangerous or Adverse Conditions	Situations which may pose a threat or possible injury to the Project Manager, or those situations which may require the use of special protective clothing, safety equipment, access equipment, or any precautionary measures.
Deferred Maintenance	Deficiencies that result from postponed maintenance, or repairs that have been put off until a later time and that require repair or replacement to an acceptable condition relative to the age of the system or property.
Dismantle	To take apart; disassemble; tear down any component, device or piece of equipment that is bolted, screwed, secured, or fastened by other means.

TERMINOLOGY	
DWV	Drainage Waste Ventilation
EIFS	Exterior Insulation and Finish System
EMS	Energy Management System
Engineering	Analysis or design work requiring extensive formal education, preparation and experience in the use of mathematics, chemistry, physics, and the engineering sciences as provided by a Professional Engineer licensed to practice engineering by any state of the 50 states.
Expected Useful Life (EUL)	The average amount of time in years that a system or component is estimated to function when installed new.
FEMA	Federal Emergency Management Agency
FFHA	Federal Fair Housing Act
Fire Department Records	Information generated or acquired by the Fire Department having jurisdiction over the Property, and that is readily available to EMG within the time frame required for production of the FCA.
FIRM	Flood Insurance Rate Maps
FM	Factory Mutual
FOIA	U.S. Freedom of Information Act (5 USC 552 et seq.)
FOIL	Freedom of Information Letter
FRT	Fire Retardant Treated
Guide	A series of options or instructions that do not recommend a specific course of action.
His	Referring to either a male or female Project Manager, or individuals interviewed by the Project Manager.
HVAC	Heating, Ventilating & Air-conditioning
IAQ	Indoor Air Quality
Immediate Repairs	Physical deficiencies that require immediate action as a result of: (i) existing or potentially material unsafe conditions, (ii) significant negative conditions impacting tenancy/marketability, (iii) material building code violations, or (iv) poor or deteriorated condition of critical element or system, or (v) a condition that if left “as is”, with an extensive delay in addressing same, has the potential to result in or contribute to critical element or system failure within one (1) year.
Interviews	Interrogatory with those knowledgeable about the Property.
Material	Having significant importance or great consequence to the asset’s intended use or physical condition.
MEP	Mechanical, Electrical, and Plumbing
NFPA	National Fire Protection Association
Observations	The results of the Project Manager’s Walk-through Survey.
Observe	The act of conducting a visual, unaided survey of items, systems or conditions that are readily accessible and easily visible on a given day as a result of the Project Manager’s walk-through.
Obvious	That which is plain or evident; a condition that is readily accessible and can be easily seen by the Project Manager as a result of his Walk-through without the removal of materials, moving of chattel, or the aid of any instrument, device, or equipment.
Owner	The entity holding the deed to the Property that is the subject of the FCA.
FCA	Facility Condition Assessment, the Purpose and Scope of which is defined in Section 2. of this report.

TERMINOLOGY	
Physical Deficiency	Patent, conspicuous defects, or significant deferred maintenance of the Property's material systems, components, or equipment as observed during the Project Manager's Walk-through Survey. Material systems, components, or equipment that are approaching, have realized, or have exceeded their typical Expected Useful Life (EUL); or, that have exceeded their useful life result of abuse, excessive wear and tear, exposure to the elements, or lack of proper or adequate maintenance. This definition specifically excludes deficiencies that may be remedied with routine maintenance, miscellaneous repairs, normal operating maintenance, and conditions that do not present a material deficiency to the Property.
PML	Probable Maximum Loss
Practically Reviewable	Information that is practically reviewable means that the information is provided by the source in a manner and form that, upon examination, yields information relevant to the property without the need for extraordinary analysis of irrelevant data.
Practice	A definitive procedure for performing one or more specific operations or functions that does not produce a test result.
Primary Improvements	The site and building improvements that are of fundamental importance with respect to the Property.
Project Manager	The individual Professional Engineer or Registered Architect having a general, well rounded knowledge of all pertinent site and building systems and components that conducts the on site visit and walk-through observation.
Property	The site and building improvements, which are specifically within the scope of the FCA to be prepared in accordance with the agreement between the Client and EMG.
Readily Accessible	Those areas of the Property that are promptly made available for observation by the Project Manager without the removal of materials or chattel, or the aid of any instrument, device, or equipment at the time of the Walk-through Survey.
Reasonably Ascertainable	Information that is publicly available, provided to EMG's offices from either its source or an information research/retrieval concern, practically reviewable, and available at a nominal cost for either retrieval, reproduction or forwarding.
Recreational Facilities	Spas, saunas, steam baths, swimming pools, tennis courts, playground equipment, and other exercise, entertainment, or athletic facilities.
Remaining Useful Life (RUL)	The consultant's professional opinion of the number of years before a system or component will require replacement or reconditioning. The estimate is based upon observation, available maintenance records, and accepted EUL's for similar items or systems. Inclement weather, exposure to the elements, demand on the system, quality of installation, extent of use, and the degree and quality of preventive maintenance exercised are all factors that could impact the RUL of a system or component. As a result, a system or component may have an effective age greater or less than its actual age. The RUL may be greater or less than its Expected Useful Life (EUL) less actual age.
Replacement Costs	Costs to replace the system or component "in kind" based on Invoices or Bid Documents provided by the current owner or the client, construction costs developed by construction resources such as *Means* and *Dodge*, EMG's experience with past costs for similar properties, or the current owner's historical incurred costs.
Replacement Reserves	Major recurring probable expenditures, which are neither commonly classified as an operation or maintenance expense. Replacement Reserves are reasonably predictable both in terms of frequency and cost. However, they may also include components or systems that have an indeterminable life but nonetheless have a potential liability for failure within the reserve term.

TERMINOLOGY	
RTU	Rooftop Unit
RUL	Remaining Useful Life (See definition)
Short Term Repair Costs	Opinions of Costs to remedy Physical Deficiencies, such as deferred maintenance, that may not warrant immediate attention, but requiring repairs or replacements that should be undertaken on a priority basis, taking precedence over routine preventive maintenance work within a zero to one year time frame. Included are such Physical Deficiencies resulting from improper design, faulty installation and/or substandard quality of original system or materials. Components or systems that have realized or exceeded their Expected Useful Life (EUL) that may require replacement to be implemented within zero to one-year time frame are also included.
Shut-Down	Equipment or systems that are not operating at the time of the Project Manager's Walk-through Survey. Equipment or systems may be considered shutdown if it is not in operation as a result of seasonal temperatures.
Significant	Important, material, and/or serious.
Site Visit	The visit to the property by EMG's Project Manager including walk-through visual observations of the Property, interviews of available project personnel and tenants (if appropriate), review of available documents and interviews of available municipal personnel at municipal offices, all in accordance with the agreement for the Facility Condition Assessment.
Specialty Consultants	Practitioners in the fields of engineering, architecture; or, building system mechanics, specialized service personnel or other specialized individuals that have experience in the maintenance and repair of a particular building component, equipment, or system that have acquired detailed, specialized knowledge in the design, assessment, operation, repair, or installation of the particular component, equipment, or system.
Structural Component	A component of the building, which supports non-variable forces or weights (dead loads) and variable forces or weights (live loads).
Suggested Remedy	A preliminary opinion as to a course of action to remedy or repair a physical deficiency. There may be alternate methods that may be more commensurate with the Client's requirements. Further investigation might make other schemes more appropriate or the suggested remedy unworkable. The suggested remedy may be to conduct further research or testing, or to employee Specialty Consultants to gain a better understanding of the cause, extent of a deficiency (whether observed or highly probable), and the appropriate remedy.
Survey	Observations as the result of a walk-through scan or reconnaissance to obtain information by EMG of the Property's readily accessible and easily visible components or systems.
System	A combination of interacting or interdependent components assembled to carry out one or more functions.
Technically Exhaustive	The use of measurements, instruments, testing, calculations, exploratory probing or discover, and/or other means to discover and/or troubleshoot Physical Deficiencies, develop scientific or Engineering findings, conclusions, and recommendations. Such efforts are not part of this report unless specifically called for under Section 2.2.
Term	Reserve Term: The number of years that Replacement Reserves are projected for as specified in the Replacement Reserves Cost Estimate.
Timely Access	Entry provided to the Project Manager at the time of his site visit.
UST	Underground Storage Tank

TERMINOLOGY	
Walk-through Survey	The Project Manager's site visit of the Property consisting of his visual reconnaissance and scan of readily accessible and easily visible components and systems. This definition connotes that such a survey should not be considered in depth, and is to be conducted without the aid of special protective clothing, exploratory probing, removal of materials, testing, or the use of special equipment such as ladders, scaffolding, binoculars, moisture meters, air flow meters, or metering/testing equipment or devices of any kind. It is literally the Project Manager's walk of the Property and observations.

APPENDIX G:
ENERGY CONSERVATION MEASURES

UIC	Replace Existing Residential Style Water Heater With New Energy Efficient Units		
EAD3	**Details: Eg.All Scattered Sites, High Rise Units and Garden Style Units**		
	Number of Water Heaters Being Replaced:	2	
Step 1	**Existing Water Heater Details**		
	Select Existing Hot Water Heater Fuel	Electric	
	Insert Energy Factor of Existing Water Heater	0.90	EF
	Input Existing Water Heater Input Rating	1.50	kW
	Select One Method For Calculation	Annual Heating Hours	
	Insert Average Annual Hours of Operation	2,190	hrs
	Annual Water Heater Energy Consumption/Heater	3,285	kWh
	Total Estimated Annual Energy Consumption For all Heaters	6,570	kWh
	Total Estimated Annual Operating Energy Costs For all Heaters	$1,059	$
Step 2	**Proposed New Water Heater**		
	Proposed Hot Water Heater Fuel	Heat Pump	
	Capacity of the Proposed New Water Heater	40-Gal,4-kW	
	Energy Factor of Proposed Water Heater	2.00	EF
	Proposed Water Heater Input Rating	13.65	kW
	Annual kBtuh Consumption For All The Proposed Water Heaters	10,088	kBtuh
	Estimated Annual Water Heater Fuel Consumption (All Heaters)	2,957	kWh
	Estimated Total Annual Energy Costs	$477	$
Step 3	**Energy & Cost Saving Calculation**		
	Estimated Cost of New Water Heater/Unit	$1,380	$$
	Total Estimated Installation Cost	$2,761	$$
	Total Estimated Annual Cost Savings	$582	$
	Simple Pay Back Period	4.74	Years
	Type of Recommendation	Capital Cost ECM Recommendation	

UIC	Install Low Flow Faucet Aerators
EAP2	Add low flow aerators to faucet

Property Type:	Commercial	Estimated No. of Operational Weeks	52
No. of Occupants	400	Number of Occupied Days/Week (Max 7)	7

KITCHEN FAUCETS			BATHROOM FAUCETS		
Do You Want To Replace Kitchen Faucets Aerators	No	*(Select)*	Do You Want To Replace Bathroom Faucets Aerators	Yes	*(Select)*
Total Number of Faucet Aerators To Be Replaced			Total Number of Faucet Aerators To Be Replaced	8	
Total Number of Faucets To Be Replaced:	0		Total Number of Faucets To Be Replaced:	0	
GPM of Existing Faucet Aerators	2.2	GPM	GPM of Existing Faucet Aerators	2.2	GPM
GPM of Proposed Faucet Aerator	1	GPM	GPM of Proposed Faucet Aerator	1	GPM
Estimated Number of Uses Per Day	4		Estimated Number of Uses Per Day	1	
Estimated Time Per Faucet Use	0.16	Mins	Estimated Time Per Faucet Use	0.16	Mins
Annual Water Savings From Kitchen Faucets	0.00	kGal	Annual Water Savings From Bathroom Faucets	16.77	kGal

WATER & ENERGY SAVING CALCULATION			COST SAVING CALCULATION		
Select Type of Water Heater Fuel:	Electric	(Select)	Property Location in United States	Northern Localities	
Energy Factor of Domestic Hot Water Heater:	0.90	EF	Heating Fuel Tariff	$0.16	$/kWh
Hot Water Discharge Temperature at Faucet	120.00	°F	Water Tariff ($/1000 Gal)	$6.89	$/kGal
Equivalent Heating Fuel Savings: *Savings Discounted by 15% to Account For Cold Water Use*	3,098	kWh	Annual Cost Savings In Form of Water	$116	$
Annual Water Savings	16.77	kGal	Annual Energy Savings From Water Heater	$499	$

COST BENEFIT ANALYSIS				
Estimated Total Annual Cost Savings	$615	$$	Estimated Total Installation Cost	$250 $$
Simple Payback Period	0.41	Years	*Type of Recommendation*	Capital Cost ECM Recommendation

UIC	Install Low Flow Tankless Restroom Fixtures
EAP4	Replace toilets and urinals with low flow types with new flush valves

ECM FOR DETERMINING WATER SAVINGS IN COMMERCIAL PROPERTIES

Number of Males	200	
Number of Females	200	
Number of Occupied Days Per Week (Max 7)	7	
Number of Occupied Weeks/Year (Max 52)	52	
Number of Urinals To Be Retrofitted	4	
Number of Water Closets To Be Retrofitted	10	
No. of Water Closets With Separate Flush Tank *(Typical Residential Type)*	0	
Estimated Restroom Usage/Individual/Day *Default is 4 Uses/Day For Residential/Office*	1	(Select)

Urinal Water Savings

Do you Want To Make Any Changes To The Urinals?	*(Select)*	Yes	
Estimated Existing Use of Urinal/Day/Man		80%	
Existing Gallons Per Flush Ratings For Urinal Flushes		1.00	GPF
GPF of Proposed Urinal Flush Valve**	*(Select)*	0.50	GPF
Estimated Annual Water Savings From Urinal		29.12	kGal

***(1992 EpACT Energy Act Mandates 1.0GPF Max on Urinals)*

Water Closet Water Savings

Tankless Water Closets

Do The Water Closet Need To Be Retrofitted?	*(Select)*	Yes	
Existing Gallons Per Flush Ratings For Water Closet Flushes		3.00	GPF
Are The Existing Water Closet Being Replaced? *(If No; Then Only The Flush Valve Would Be Replaced With Dual Flush Retrofit Kit)*	*(Select)*	Yes	
No. of Tankless Water Closets		10	
GPF of Proposed Dual Flush- Water Closet Valve*	*Solid Waste (20%)*	1.60	GPF
**(Federal Law Requires All Flushes Not To Exceed 1.6 GPF)*	*Liquid Waste (80%)*	1.10	GPF
Estimated Annual Water Savings From Male Users		26.21	kGal
Estimated Annual Water Savings From Female Users		131.04	kGal
Total Water Savings From Water Closets		157.25	kGal

Water & Cost Saving Calculations

Water Savings Calculation

Water Savings By The Use of Low Flow Water Closet Flush Valves/Yr	157.25	kgal
Water Savings By The Use of Low Flow Urinal Flush Valves/ Yr	29.12	kgal
Total Annual Water Savings in kgal	186.37	kgal

Cost Savings Calculations

Enter Water Tariff Rate ($/1000Gal)	$6.89	$$
Estimated Cost Savings From Water	$1,285	$$

Estimated Cost of Retrofit

Cost For Replacing Existing Urinal Fixture With A Low Flow Fixture	$933 *(Includes Labor)*	$$
Cost For Replacing Existing Water Closet With A New Water Closet And- Dual Flush Valves ($500 Per Unit + $260 Labor) *(Up For Liquid Waste And Down For Solid Waste)*	$7,600 *(Includes Labor)*	$$
Estimated Total Cost For Retrofit	$8,533	$$
Simple Pay Back Period	6.64	Yrs
Type of Recommendation	Capital Cost ECM Recommendation	

UIC	Upgrade Inefficient Linear Fluorescent Lamps And Fixtures
EAL2	**Details: Replace Linear Fluorescent Lamps With Energy Efficient Linear Fluorescent Lamps**

Total No. of ECMs: **4**

	ECM Count	Fixture Qty	Bulb Qty	Total kWh Saved
Single-ECM				
Replace Bulb ECM	4	32	64	2,206
Replace Fixture ECM	0	0	0	0
Replace Bulb and Ballast ECM	0	0	0	0
Delamping	0	0	0	0
Install New Controls	0	0	0	0
Multi-ECM				
Replace Bulb & New Control	0	0	0	0
Replace Fixture & New Control	0	0	0	0
Replace Bulb and Ballast & New Control	0	0	0	0
Delamping & New Control	0	0	0	0
Total	**4**	**32**	**64**	**2,206**

Number of Lamps To be Replaced:		Fixture Qty	Lamps Qty	kWh Saved (ECM A) Bulb Only KWH	kWh Saved (ECM B) Controls Only KWH	Total Energy Saved KWH
2' Long T8 Lamps	F2T8	0	-	0	0	0
3' Long T8 Lamps:	F3T8	0	-	0	0	0
4' Long T8 Lamps:	F4T8	0	64	2,206	0	2,206
8' Long T8 Lamps:	F8T8	0	-	0	0	0
2' Long U Shaped T8 Lamps:	FUT8	0	-	0	0	0
4' Long T5 Lamps:	F4T5	0	-	0	0	0
2' Long T5 Lamps:	F2T5	0	-	0	0	0
3' Long T5 Lamps:	F3T5	0	-	0	0	0
5' Long T5 Lamps:	F5T5	0	-	0	0	0
8' Long T5 Lamps:	F8T5	0	-	0	0	0
Circuline Linear Fluorescents	FC	0	-	0	0	0
Total:		**0**	**64**	**2,206**	**0**	**2,206**

Proposed Lighting Controls:	Qty	Controls Only ECM B KWH Saved	Total Cost ($)
No. of Ceiling Mounted Occupancy Sensor:	0	0	-
No. of Wall Mounted Occupancy Sensor:	0	0	-
No. of Photosensors:	0	0	-
Total:	**0**	**0**	**$0**

Proposed Ballasts To Be Installed:	Qty	Material Cost ($)
Electronic Instant Start Ballast:	0	-
Electronic Rapid Start Ballast:	0	-
Total:	**0**	**$0**

	Qty	Material Cost
No. of Reflectors To Be Installed:	0	-

No. of New Fixtures To Be Installed:	Qty	Material Cost
Troffer	0	-
High or Low Bay Troffer (T5)	0	-
Strip -Wraparound -Cloud	0	-
Total:	**0**	**$0**

Total Material and Labor Costs	Material Costs	Labor Costs
Total Lamp Costs:	$224	$253
Total Ballasts Costs:	$0	$0
Total Fixture Costs:	$0	$0
Total Lighting Controls Costs:	$0	$0
Total Reflectors Costs:	$0	$0
Total	**$224**	**$253**
Economy of Scale Based Discount on Labor:		Did Not Meet Minimum
(R.S Means R265113-40)		
Sum Total:	**$224**	**$253**

		Days
Scissor Lift/Boom Equipment Rental For Installation	Equipment Not Required	-
Rental Cost: ($)	-	

Total Investment : $477

Local Electric Rate:	$0.16 $/kWh	Hourly Labor Rate For a Licensed Electrician:	$79.12
Estimated Annual Energy Savings:	2,206 kWh	Estimated Annual Energy Cost Savings:	$356
Estimated Annual O&M Savings:	0.5 (Hrs)	Estimated Annual O&M Cost Savings:	$37
Budgeted Initial Investment:	$477	Estimated Annual Cost Savings:	$392
Estimated Return on Investment: *(Before Incentives)*	1.22 Years		

Type of Recommendation Capital Cost ECM Recommendation

APPENDIX H:
RESUMES

MARGARET H. MITNICK, P.E., LEED AP

Program Manager

Education

- B.S., Civil Engineering, University of Rhode Island, 1985
- B.A., Biology - Ecology concentration, University of Pennsylvania, 1978

Project Experience

- Archdiocese of Baltimore – Baltimore, MD.

Program Manager and Technical Report Reviewer for FCA with AssetCALC™ at multiple parishes in the Baltimore Area. The assessments included structural, mechanical, and electrical systems and components of buildings and infrastructure. Her dedication to accuracy and detail of all reports, support documents and cost estimates insured the finalization of the projects within the contract time frame with minimal revision requirements from the draft submissions to finalization.

- Hampton Redevelopment and Housing Authority - Hampton, VA.

Program Manager and Technical Report Reviewer for GPNA and HUD Rental Assistance Demonstration program conversion of multi-family properties managed by housing authority.

- Ypsilanti Housing Authority - Ypsilanti, MI.

Program Manager and Technical Report Reviewer for GPNA and Energy Audit with AssetCALC™ and HUD Rental Assistance Demonstration program conversion of multi-family properties managed by the housing authority.

- Capital Region Education Council - Hartford, CT.

Facility Condition Assessments for several portfolios of K-12 schools

- State of Vermont – Montpelier, VT

Program Manager and Technical Report Reviewer for Facility Condition Assessment and Energy Audit on the state-owned building inventory approximately 3,590,000 gross square feet in approximately 285 buildings.

- Anne Arundel Community College – Arnold, MD

Program Manager and Technical Report Reviewer for Facility Condition Assessment with AssetCALC™ of 28 facilities occupying approximately 905,064 square feet.

- Mental Health Association in Tulsa – Tulsa, OK

Program Manager and Technical Report Reviewer for Facility Condition Assessment with AssetCALC™, mechanical inventory and major movables inventory of 23 sites.

- ☐ Suffolk Redevelopment and Housing Authority – Suffolk, VA

Program Manager and Technical Report Reviewer for GPNA and Energy Audit with AssetCALC™ and HUD Rental Assistance Demonstration program conversion of multi-family properties managed by the housing authority.

Industry Tenure

- A/E: 1985
- EMG: 2013

Professional Registrations

- Professional Engineer: DC/MD/VA
- U.S. Green Building Council, LEED Accredited Professional

Professional Memberships and Associations

- American Society of Civil Engineers
- International Concrete Repair Institute
  - President, Baltimore-Washington, D.C. Chapter, 2002
  - Board of Directors, 2005-2006
  - 2012 ICRI BWC Outstanding Project Award – 3rd Place
- Project Management Institute
  - PMP, 2013

Regional Location

Baltimore, Maryland

JOE SLOBODA

Project Manager

Education

- Juris Doctorate, Pace University School of Law , 1987
- BS, Mechanical Engineering, Rutgers University, 1984
- BA, Political Science, Fairleigh Dickinson University, 1984

Project Experience

- ***Phoenix Assets Syndicate, New York, New York*** - As a Senior Project Manager Mr. Sloboda performed viability assessments to determine the projected functionality of property located in the NYS Catskill Mountains for use as gaming hospitality centers.
- ***JSWorld, LLC, Morristown, New Jersey*** – Mr. Sloboda served as a Project Manager and Asset Consultant to multiple companies to determine the feasibility of property acquisition as a hedge fund component to moderate capital loss and generate long term stability.
- ***Parsons Brinkerhoff, New York, New York*** – Mr. Sloboda served as the Project Manager Operations for the Building Condition Assessment Survey (BCAS) Project of all 1580 NYC school properties for the School Construction Authority (SCA); in this role he served as primary liaison to the SCA and directed daily operations of the inspection teams. Additionally, Mr. Sloboda was responsible for bidding, planning, and organizing the New York City Housing Authority (NYCHA) HUD required inspections to establish a new database for condition assessment.
- ***ABC Electric Service, Fort Myers, Florida*** – Mr. Sloboda was Project Manager and Designer on multiple industrial, commercial, and institutional projects. He designed innovative load shedding controllers that resulted in two newly constructed Collier County schools receiving state Green Construction Awards. Mr. Sloboda was also instrumental in adapting local construction to meet newly implemented state hurricane readiness guidelines.
- ***Collier Electric Company of Fort Myers, Fort Myers, Florida*** – Mr. Sloboda was Project Manager responsible for institutional and commercial projects managing new construction at large box stores such as Bed, Bath, and Beyond; Foot Locker; and JC Penny, certain of his modifications to BMS have been adopted by Siemens and become industry standard.

Industry Tenure

- A/E: 1996
- EMG: 2014

Related Experience

- Operations Manager Building Condition Assessment Survey New York City Schools
- School Construction
- Hospital Renovations and Construction
- Retail Design
- Electrical Distribution Design

Industry Experience

- Government Facilities
- Office
- Industrial
- Housing/Multi-family
- K-12
- Higher Education
- Hospitality
- Healthcare
- Retail/Wholesale

Associations / Memberships

- IEEE

Regional Location

- New York, NY

RALPH MANGLASS JR. PE

Project Manager

Education

- BS Mechanical Engineering Purdue University 1982

Project Experience

- ***South Portland Housing Authority, South Portland, ME***- Mr.Manglass served as the Project Manager for a HUD GPNA survey of 3 elderly/disabled apartment complexes comprising 205 units.
- ***New Britain Housing Authority, New Britain, CT –*** Mr. Manglass served as the Project Manager for a HUD GPNA survey of 5 Elderly/disabled apartment complexes comprising 392 units.
- ***Public Ledger Building, Philadelphia, PA***- Mr. Manglass served as the MEP inspection engineer for a Property Condition Assessment of a 500,000 SF 12-story landmark building for a buyer/client. The building included one of the earliest central air conditioning systems in the USA with some original operating components and early 2-phase, 5-wire electrical systems which Mr. Manglass evaluated to provide valuable insight and understanding to the client.
- ***Longfellow Plaza, Boston, MA***- Mr. Manglass served as the MEP inspection engineer for a Property Condition Assessment of a 4 building residential/commercial property that included 2 38-story residential towers for a REIT buyer/client.
- ***The Brook House, Brookline, MA***- Mr. Manglass served as the MEP inspection engineer for condition assessment and Reserve Fund Study of a 760 unit, 4-tower condominium built in the early 1960's. The property has central boiler and chiller plants with a 3 pipe distribution systems and a stationary natural gas driven emergency generator system, which were evaluated by Mr. Manglass.

Design Engineering Experience

- ***Yarmouth Water District Office Building, Yarmouth ME, –*** As a Lead Mechanical Engineer, Mr. Manglass Designed the HVAC and Plumbing systems for this LEED accredited 9000 SF combined office and utility building

Industry Tenure

- A/E: 1982
- EMG: 2013

Related Experience

- HVAC/Plumbing design
- ASME pressure vessels/piping
- Property Condition Assessments
- Comprehensive Needs Assessments
- Condominium Transition Studies

Industry Experience

- Mechanical Building Systems Design and Evaluation
- Tank, Pressure Vessel, and Piping Design
- ASME, ANSI B-31, API, AWWA Tank and Piping Design

Active Licenses/Registration

- Maine Registered Mechanical Professional Engineer #8092 (1995)
- Massachusetts Registered Mechanical Professional Engineer #49751 (2012)
- Member ASHRAE

Special Skills & Training

-

Regional Location

- New England

LEVEL II ENERGY AUDIT

STATE OF VERMONT

2 Governor Aiken Avenue
Montpelier, Vermont 05633

SOLAR PHOTOVOLTAIC FEASIBILITY ANALYSIS SUPPLEMENTAL REPORT

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Date of Report: January 29, 2015

TABLE OF CONTENTS

1. ROOFTOP SOLAR PHOTOVOLTAIC FEASIBILITY

A photovoltaic array is a linked collection of photovoltaic modules, which are in turn made of multiple interconnected solar cells. The cells convert solar energy into direct current electricity via the photovoltaic effect. The power that one module can produce is seldom enough to meet requirements of a home or a business, so the modules are linked together to form an array. Most PV arrays use an inverter to convert the DC power produced by the modules into alternating current that can plug into the existing infrastructure to power lights, motors, and other loads. The modules in a PV array are usually first connected in series to obtain the desired voltage; the individual strings are then connected in parallel to allow the system to produce more current. Solar arrays are typically measured by the peak electrical power they produce, in watts, kilowatts, or even megawatts.

When determining if a site is suitable for a solar application, two basic considerations must be evaluated:

- At minimum, the sun should shine upon the solar collectors from 9 AM to 3 PM. If less, the application may still be worthwhile, but the benefit will be less.
- The array should face south and be free of any shading from buildings, trees, rooftop equipment, etc. If the array is not facing directly south, there will be a penalty in transfer efficiency, reducing the overall efficiency of the system.

EMG has performed Solar Feasibility Analysis on the Following Properties:

1. Costello Court House
2. Zampieri Office Building
3. 50 Cherry Street
4. Mahady Courthouse
5. 109 State Street
6. 110 State Street
7. 120 State Street
8. District Court

A solar feasibility analysis for calculating the potential electricity generated from the allocated roof area set for solar photovoltaic installment was conducted by EMG. This was accomplished by using the calculation methodology laid down by National Renewable Energy Laboratory. The available roof after is calculated based on the observation made during the site visits and using commercially available satellite images for the property. The details of incentives and rebates that can potentially bring down the installation cost of the ECMs and result in a higher return on investment and quicker payback period in included in this report.

The approach taken in the solar photovoltaic (PV) roof analysis begins with surveying the roof and determine areas on the roof where solar PV panels can potentially be installed.

1) Conducting a preliminary sizing of solar PV panels on the roofs and on the ground and its potential electricity production for its first year of installment using the National Renewable Energy Laboratory (NREL) PV WATTS Version 2 Software.

2) Calculate energy and cost savings for the sites as a sole proprietor of the system capable of collecting state, local, and federal tax credits and incentives and interconnecting and selling the renewable energy electrical production to the building.

Property Name	Roof Orientation	Number of Roofs	Total Roof Area for Fixed Tilt PV Array Sqft
Costello Court House	Flat Roof	3	17,319
Zampieri Office Bldg	Flat Roof	3	24,347
50 Cherry Street	Flat Roof	1	9,496
Mahady Courthouse	South, East and West (Pitched Roof)	3	5,392
109 State Street	Flat Roof	2	10,794
120 State Street	Flat Roof	1	7,175
110 State St	No Significant Roof Space	-	-
82 Rail Road Row	Flat Roof	1	1,522

The building roofs are primarily flat with the exception of Mahady Courthouse and 110 State Street that have pitched and mansard roof facing all directions. With the site is located in the northern hemisphere, solar PV are to be facing south to fully capture the solar irradiation through the entire year. Panels on east and west facing roofs are good candidates but collect slightly lower pverall solar irradiation based on its orientation. These panels can be tilted towards the south to collect more irradiance for a slightly high price but might not be aesthetically pleasing sight on the roof.

Solar Rooftop Photovoltaic Analysis		
Total PVR Roof Area	76,045	ft^2
Estimated Number of Panels	3,292	
Estimated KW Rating	791	KW
Potential Annyal kWh Produced	661,374	kWh
% of Current Electricity Uses	11.7%	
Financial Summary		
Investment Cost	$2,768,020	
Estimated Energy Cost Savings	$104,677	
Payback without Incentives	26.4	Years
Payback with All Incentives	16.8	Years

A photovoltaic array is a linked collection of photovoltaic modules, which are in turn made of multiple interconnected solar cells. The cells convert solar energy into direct current. Modules of cells are linked together to form an array. Most PV arrays use an inverter to convert the DC power produced by the modules into alternating current that can connect to existing AC infrastructure to power lights, motors, and other loads.

One breakthrough for PV is "Net Metering". When more PV electric power is generated than is consumed on site, the electric service meter reverses to "sell" the excess power directly back onto the power grid. The economics of PV for commercial industrial installations become attractive when coupled with incentives from Federal and state agencies, as well utility companies.

A kilowatt-hour costing $0.15 might be valued at $0.30 when produced by PV and sent to the grid. The economics of PV for commercial industrial installations become attractive when coupled with incentives from Federal and state agencies, as well utility companies.

U.S. Department of Treasury – Renewable Energy Grants

The credit is equal to 30% of expenditures, with no maximum credit. Eligible solar energy property includes equipment that uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat. Hybrid solar lighting systems, which use solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight, are eligible. Passive solar systems and solar pool-heating systems are *not* eligible.

State and Local Tax Credits and Incentives Description

In addition to the renewable energy grant, from the federal government, the state can also benefit from the utility provided incentive of $0.06/kWh, which is in addition to the benefit of net-metering, where the property can supply excess power back to the grid.

2. APPENDICES

APPENDIX A: ECM Calculations

APPENDIX A:
ECM CALCULATIONS

UIC	Install Fixed Tilt Solar Photovoltaic System
EAR-2	Details: State of Vermont- Solar Feasibility Analysis

Select State: Vermont

Annual Electric Consumption For All Facilities: 5,643,040 KWh

Roof No.	Property Name	Roof Orientation	Number of Roofs	Total Roof Area for Fixed Tilt PV Array	Estimated Number of 280 Watt PV Panels:	DC Rating of PV System (10.4 Watts/ft2)	Total Estimated Electricity Generated	Total Cost Savings	Installation Cost: ($3.5/Watt)	Simple Pay Back Period without Incentives	One Time Potential Utility or State Incentives	One Time Potential Federal Incentives	Annual Potential Incentives and Rebates		Simple Pay Back Period with All Incentives
				ft^2		kW	kWh			Yrs		Dept. of Treasury Renewable Grant (30%)	Federal REPI Incentive	Solar Renewable Certificates (SRECS)- (~$0/MWH)	Years
1	Costello Court House	Flat Roof	3	17,319	750	180.1	152,274	$24,364	$630,412	25.9	$9,136	$189,123	$3,198	$0	16.4
2	Zampieri Office Bldg	Flat Roof	3	24,347	1,054	253.2	214,062	$29,969	$886,213	29.6	$12,844	$265,864	$4,495	$0	18.8
3	50 Cherry Street	Flat Roof	1	9,496	411	98.8	83,490	$14,193	$345,645	24.4	$5,009	$103,694	$1,753	$0	15.5
4	Mahady Courthouse	South	1	1,578	68	16.4	13,874	$3,607	$57,439	15.9	$832	$17,232	$291	$0	10.1
5	Mahady Courthouse	East	1	1,814	79	18.9	11,882	$3,089	$66,030	21.4	$713	$19,809	$250	$0	13.9
6	Mahady Courthouse	West	1	2,000	87	20.8	14,419	$3,749	$72,800	19.4	$865	$21,840	$303	$0	12.6
7	109 State Street	Flat Roof	2	10,794	467	112.3	94,904	$14,236	$392,902	27.6	$5,694	$117,870	$1,993	$0	17.5
8	120 State Street	Flat Roof	1	7,175	311	74.6	63,087	$9,463	$261,179	27.6	$3,785	$78,354	$1,325	$0	17.5
9	110 State St	East	-	-							-			$0	
10	82 Rail Road Row	Flat Roof	1	1,522	66	15.8	13,382	$2,007	$55,401	27.6	$803	$16,620	$281	$0	17.5
			14	**76,045**	**3,292**	**790.9**	**661,374**	**$104,677**	**$2,768,020**	**26.44**	**$39,682**	**$830,406**	**$13,889**	**$0**	**16.80**

Solar Rooftop Photovoltaic Analysis		
Total Number of Roofs	14	
Total PV Roof Area	76,045	ft^2
Estimated Number of Panels	3,292	
Estimated KW Rating	791	KW
Potential Annual KWh Produced	661,374	KWh
% of Current Electricity Load	11.7%	
Financial Analysis		
Investment Cost	$2,768,020	
Estimated Energy Cost Savings	$104,677	
Potential Rebates	$870,088	
Potential Annual Incentives	$13,889	
Payback without Incentives	26.4	years
Incentive Payback but without SRECS	16.8	years
Payback with All Incentives	16.8	years