

SHISHMAREF HEALTH CLINIC



ALASKA RURAL PRIMARY CARE FACILITY ASSESSMENT AND INVENTORY SURVEY REPORT

FEBRUARY 28, 2002



Table of Contents

1. EXECUTIVE SUMMARY	1
A. OVERVIEW	1
B. RENOVATION/UPGRADE AND ADDITION	2
C. NEW CLINIC	2
2. GENERAL INFORMATION	3
A. PURPOSE OF REPORT AND ASSESSMENT PROCESS	3
B. ASSESSMENT TEAM	3
C. REPORT FORMAT	3
D. SITE INVESTIGATION	3
3. CLINIC INSPECTION SUMMARY	5
A. COMMUNITY INFORMATION	5
B. GENERAL CLINIC INFORMATION	6
1) Physical Plant Information	6
C. PROGRAM DEFICIENCY NARRATIVE	7
1) Space Requirements and Deficiencies	7
2) Building Issues	8
3) Functional Design Issues	9
4) Health Program Issues	9
5) Utilities	9
D. ARCHITECTURAL / STRUCTURAL CONDITION	9
1) Building Construction	9
2) Interior Construction	10
3) Structural	10
E. MECHANICAL CONDITION	11
1) Heating System	11
2) Ventilation System	11
3) Plumbing System	11
F. ELECTRICAL CONDITION	12
1) Electrical Service	12
2) Power Distribution	12
3) Grounding System	12
4) Exterior Elements	12
5) Electrical devices and lighting	13

6) Emergency System _____	13
7) Fire Alarm System _____	13
8) Telecommunication _____	13
G. CIVIL / UTILITY CONDITION _____	13
1) Location of Building _____	13
2) Site Issues _____	14
3) Proximity of Adjacent Buildings _____	14
4) Utilities _____	14
H. EXISTING FACILITY FLOOR PLAN (SITE PLAN IF AVAILABLE): _____	14
4. DEFICIENCY EVALUATION _____	15
A. DEFICIENCY CODES: _____	15
B. PHOTOGRAPHS _____	17
C. COST ESTIMATE GENERAL PROVISIONS _____	17
1) New Clinic Construction _____	17
2) Remodel, Renovations, and Additions _____	18
5. SUMMARY OF EXISTING CLINIC DEFICIENCIES _____	20
6. NEW CLINIC ANALYSIS _____	21
7. CONCLUSIONS AND RECOMMENDATIONS _____	23

Appendix A: Specific Deficiencies Listings
Appendix B: Reference Photographs

1. EXECUTIVE SUMMARY

A. OVERVIEW

The purpose of this report is to document rural community health program clinic needs. Those needs have been assessed from several perspectives. This is the second stage of the planning and implementation process for improving the quality of rural primary care through capital improvements to community clinics.

The first stage was development of the "Alaska Rural Primary Care Facility Needs Assessment" dated 10/23/2000. The purpose in part of this effort was to establish base lines for the planning and implementation to follow. This second stage is to document rural community health clinic needs and conditions from several perspectives as follows:

- 1) A spatial assessment involving spaces (as-built floor plan) for comparison with pre-established Alaska Rural Primary Care Facility (ARPCF) space basis, as set forth in the ARPCF needs assessment dated 10/23/2000.
- 2) A code and condition survey of the existing facility
- 3) Identification of a site for a new facility (if applicable/decided) and the status of services to that site (road, electricity, water, sewer, etc.).
- 4) Documentation of functional inputs as communicated by local people or observed by the assessment team (Note: functional planning was a component of the needs assessment in the stage 1)
- 5) Development of options to facilitate programmatic and technical needs and deficiencies,
- 6) Costing of those options and
- 7) Recommendations as to the option or options that best address the clinic need and deficiencies¹.

ARPCF clinic basis were standards established in stage 1 based on population. They translate into three clinic sizes as follows:

Small Clinic

Population	20-100
Space Standard	1,535 gsf (heated)

Medium Clinic

Population	101-500
Space Standard	1,989 gsf (heated)

Large Clinic

Population	501+
Space Standard	2,459 gsf (heated) ²

¹ There are only four options available in any rural community as follows: 1) New Facility, 2) Existing Facility renovations and or additions, 3) limited scope renovations and/or additions – driven by committed funding from either capital or operating perspectives (this option is not costable without scope or funding definition, 4) status quo (no change) (note: any of these options can apply to combined facilities existing or envisioned.

² The intent of the code and condition survey is to identify and cost deficiencies inclusive of spatial deficiencies. The accumulation of those costs is then intended to be compared to the cost of a new clinic. If the costs of renovations and additions exceed 75% of new construction then a new clinic option is considered viable.

Shishmaref has a population of 562(2000 Census). This qualifies it for a large size clinic of 2,459 gsf. The existing clinic is 1,938 gsf resulting in a space deficiency of 521 gsf. The facility was reportedly constructed in 1983. It is a residential wood frame structure supported on bearing walls and 4x12 treated wood mudsills on gravel. The community has been frequently in the news due to coastal erosion. Community relocation being a primary issue. Aside from this issue the current facility has two other concerns; it has a sewage sump in the building which backs up, and floods and contaminates the facility, and foundation settlement near the front entrance - probably due to fire rated filing cabinets. The facility appears structurally workable, and is considered a good candidate for renovations and additions unless community relocation becomes a consideration.

Key community issues and perspectives are as follows:

- ◆ The itinerant and specialty clinic spaces are filled with equipment and supplies in part because the storeroom was converted to the sump room.
- ◆ Trauma room is too small and doors are too narrow.
- ◆ Original water distribution lines froze and have been circumvented with plastic tubing on the surface of walls and ceilings.
- ◆ Too little office space.
- ◆ Roofs shed snow and ice at entries.
- ◆ Fuel tanks leak.
- ◆ No ventilation.
- ◆ No back up heat.
- ◆ Itinerant space cramped - possibly enough room for two or more.
- ◆ Restroom tub too high for elderly bathing.
- ◆ No local transportation suitable for ill or elderly.
- ◆ Mice come in building during summer through sewer.
- ◆ Need space for chronic medicine supplies.
- ◆ Lack of records storage space.

B. RENOVATION/UPGRADE AND ADDITION

This option is as previously discussed under A Overview. Its probable impacts are diagramed in drawing A4 that is an overlay of ARPCF spaces onto the existing floor plan. Since additions and renovations will cost as much as a new clinic, a new clinic is recommended over renovation and upgrade.

C. NEW CLINIC

This option is as cost summarized in Section A Overview. It is based on ARPCF space standards set in Stage I of this planning process and as costed under section 6 new clinic analysis of this report for a medium size clinic. Since additions and renovations will cost as much as a new clinic, a new clinic is recommended over renovation and upgrade. As the village location has been threatened with coastal erosion a new clinic would need to be designed for future relocation. At the time of the survey the village had not yet identified a new site.

2. GENERAL INFORMATION

A. PURPOSE OF REPORT AND ASSESSMENT PROCESS

ANTHC has entered into a cooperative agreement with the Denali Commission to provide management of the small clinic program under the Alaska Rural Primary Care Facility assessment, planning, design, and construction. Over 200 clinics will be inspected through the course of the program. The purpose of the Code and Condition survey report is to validate the data provided by the community in the Alaska Rural Primary Care Facility Needs Assessment and to provide each community with a uniform standard of evaluation for comparison with other communities to determine the relative need between the communities of Alaska for funding assistance for the construction of new or remodeled clinic facilities. The information provided in this report is one component of the scoring for the small clinic RFP that the Denali Commission sent to communities in priority Groups 3 and 4. The information gathered would be tabulated and analyzed according to an asset of fixed criteria that should yield a priority list for funding. Additionally, the relative costs of new construction vs. remodel/addition will be evaluated to determine the most efficient means to bring the clinics up to a uniform standard of program and construction quality.

A team of professional Architects and Engineers traveled to the site and completed a detailed Field Report that was revised by all parties. Subsequently, the team completed a draft and then final report of the facility condition.

B. ASSESSMENT TEAM

The survey was conducted on December 13, 2001 by Robert F. Bezek, Architect, Bezek Durst Seiser, Inc. and Charlie Chien M.E. PDC, Inc., and Lloyd Persson, ANTHC. ANTHC made introductions and conducted village briefings to ensure complete understanding of the inspection process. Village contacts were: Judie Eningoluuk, CHP; Sheryl Nayokpuk, CHP; Luci Eningowick, NSHC Boardmember; Jeanette R. Iyatinguk, Tribal Coordinator; Kevin Zweifel, NSHC OEH; and Alfred Pootogooluk, IRA Maintenance. Team members who assisted in the preparation of the report from information gathered included members of the field team above and Robert Bezek, Bezek Durst Seiser, Inc., and Charlie Chien M.E. PDC, Inc.

C. REPORT FORMAT

The format adopted is a modified "Deep Look" format, a facilities investigation and condition report used by both ANTHC and the Public Health Service, in maintaining an ongoing database of facilities throughout the country. Facilities are evaluated with respect to building code compliance, general facility condition, and spatial deficiencies. The written report includes these evaluations, in addition to sketches of building construction details and identification of potential sites (where available) for a new clinic. This information is available for viewing at ANTHC's Anchorage offices and will be held for reference.

D. SITE INVESTIGATION

Site investigation was undertaken on December 13, 2001. An initial presentation to clinic personnel to explain why we were there was made by the ANTHC representative. The team as-built the floor plan made code and condition observations and took photographs. The investigation was taken then

concluded in a debriefing session with the clinic and community personnel, they presented their issues, followed by the investigative team reviewing the findings of their survey.

3. CLINIC INSPECTION SUMMARY

A. COMMUNITY INFORMATION

Population:

- ◆ 562 (2000 Census)
- ◆ 2nd Class City, Unorganized, Bering Straights Schools, Bering Straights Native Corp.

Location: Shishmaref is located on Sarichef Island, in the Chukchi Sea, just north of Bering Strait. It is five miles from the mainland, 126 miles north of Nome and 100 miles southwest of Kotzebue. Shishmaref is surrounded by the 2.6 million acre Bering Land Bridge National Reserve. It has been proposed to become part of the Beringian National Heritage Park, endorsed by Presidents Bush and Gorbachev in 1990. It lays at approximately 66d 15m N Latitude, 166d 04m W Longitude. (Sec. 23, T010N, R035W, Kateel River Meridian.) Shishmaref is located in the Cape Nome Recording District. The area encompasses 2.8 sq. miles of land and 4.5 sq. miles of water.

History: The original Eskimo name for the island is "Kigiktaq." In 1816, Lt. Otto Von Kotzebue named the inlet "Shishmarev," after a member of his crew. Excavations at "Keekiktuk" by archaeologists around 1821 provided evidence of Eskimo habitation from several centuries ago. Shishmaref has an excellent harbor, and around 1900 it became a supply center for gold mining activities to the south. The village was named after the Inlet and a post office was established in 1901. The City government was incorporated in 1969. During October 1997, a severe storm eroded over 30 feet of the north shore, threatening the loss of 14 homes, and destroying many winter food caches. The 14 homes were relocated way from the new bluff, however, the City will need a protective seawall to prevent additional damage.

Culture: It is a traditional Eskimo village with a fishing and subsistence lifestyle. The sale or importation of alcohol is banned in the village.

Economy: The Shishmaref economy is based on subsistence supplemented by part-time wage earnings. Two residents hold a commercial fishing permit. Year-round jobs are limited. Villagers rely on fish, walrus, seal, polar bear, rabbit, and other subsistence foods. Two reindeer herds are managed from here. Reindeer skins are tanned locally, and meat is available at the village store. The Friendship Center, a cultural center and carving facility, was recently completed for local artisans.

Facilities: Water is derived from a surface source, is treated and stored in a new tank. Shishmaref is undergoing major improvements, with the construction of a flush/haul system and household plumbing. 19 HUD homes have been completed, and 71 homes remain. The new system provides water delivery, but the unserved homes continue to haul water. Honey buckets and the new flush tanks are hauled by the City. The school, clinic, Friendship Center, City Hall and fire hall are connected to a sewage lagoon. A new landfill is planned for the City; an access road is under construction.

Transportation: Shishmaref's primary link to the rest of Alaska is by air. A new State-owned 5,000' paved runway is available. Charter and freight services are available from Nome. Most people own boats for trips to the mainland.

Climate: The area experiences a transitional climate between the frozen arctic and the continental Interior. Summers can be foggy, with average temperatures ranging from 47 to 54; winter temperatures average -12 to 2. Average annual precipitation is about 8 inches, including 33 inches of snow. The Chukchi Sea is frozen from mid-November through mid-June.

B. GENERAL CLINIC INFORMATION

1) Physical Plant Information

The existing Shishmaref clinic was reported to have been constructed in 1974. It is a residential³ grade structure. The site is beach sand and gravel. The footings are treated mudsills with bearing wall foundations. It appears to have had a boiler room addition. The water lines had frozen in the past and have been replaced with surface plastic tubing to all plumbing fixtures. Apparently some sewer modifications were also made to the facility at some point in its life. A storage room was sacrificed to install a large sewage sump. This sump overflows regularly. The clinic is unventilated and therefore become almost uninhabitable at times. The sewage overflow has contaminated (frozen liquids and solids) the underside of the structure.

³ The use of the term residential has the following assumed meanings:

Structural – residential live loads usually range from 20 to 40 psf. The minimum live loads for clinics should be 50 psf in the office areas. For computer use areas the load can be as much as 100 psf. Operating rooms and laboratories are generally designed with a live load of 60 psf. With the village clinics being relatively small, I would probably design the entire floor system at 60 psf with the exception of the record keeping area. This area should be designed for a minimum of 100 psf.

C. PROGRAM DEFICIENCY NARRATIVE

1) Space Requirements and Deficiencies

SPACE COMPARISON MATRIX
Current Shishmaref Actual SF to Denali Commission Medium Clinic

Alaska Rural Primary Care
Facility

Purpose / Activity	Designated Itinerant	Current Clinic					Large Clinic			Difference			
		Size	No.	Actual Net S.F.		ARPCF SF		Size	No.	Net Area (SF)	Size	No.	Net Area (SF)
				Size	No.	Size	No.						
Arctic Entries				59	1	59	50	2	100				-41
Waiting/Recep/Closet				222	1	222	170	1	170				52
Trauma/Telemed/Exam				110	1	110	200	1	200				-90
Office/Exam (Office/Office)				14+140	2	280	150	2	300				-20
Admin./Records				67+112	2	179	110	1	110				69
Pharmacy/Lab				106	1	106	80	1	80				26
Portable X-ray				0	0	0	40	1	40				-40
Specialty Clinic/Health Ed/Conf.				0	0	0	150	1	150				-150
Patient Holding/Sleeping Room (Itinerant, Storage & Kitchen)				118+65	2	183	150	1	150				33
Storage				105	1	105	120	1	120				-15
HC Toilet				45+86	2	131	60	2	120				11
Janitor's Closet				43	1	43	30	1	30				13
													0
													0
Subtotal Net Area						1418			1570				-152
Circulation & Net/Gross Conv. @45%						461			707				-246
Subtotal (GSF)						1879			2277				-398
Mechanical Space @ 8% (Sump room and Boiler)					2	81			182				-101
Total Heated Space						1960			2459				-499
Morgue (unheated enclosed space)							30	1	30				-30
Ext. Ramps, Stairs, Loading		HC Accessible			As Required			As Required			As Required		

- a. Overall Space Deficiencies: The Shishmaref clinic is deficient a total of 499 gs as measured against the large clinic ARPCF basis.
- b. Specific Room Deficiencies: Specific room deficiencies include primarily: arctic entries; trauma; and specialty clinic. Reference space comparison matrix above.
- c. Other Size Issues: None.

2) Building Issues

- a. Arctic Entries: The clinic uses the end entry by the waiting area. The back entry seems to have been originally intended as a trauma patient entry as one entry opens up to a small intermediate hallway and another door into a small exam room. The door into the small hallway does not meet handicapped standards in terms of the width of the hallway and the positioning of the door. The doors are only 3 feet wide. Getting gurneys through 3 feet wide doors is troublesome. The side entry is not an arctic entry. There is an arctic entry at the gable end of the building, which comes into the waiting area; it is stacked with the emergency gear. Technically this is a code violation to have the gear stored here. However, it is stored here because it is accessible for use and it is the only space they have.
- b. Waiting / Reception: It appears that the building was originally heated with a Toyo stove, and later a boiler room was added to the corner of the reception area. The door to this area is a hollow metal door and frame, but it hasn't been properly fitted around the sheetrock so it is ineffective as a fire barrier. Eye clinic construction was in progress at the time of the site visit. The optometrist has a reception and file area set up in the waiting area further restricting the waiting area. There was sitting room for approximately 2 people in the waiting area. This space was seriously congested.
- c. Exam / Trauma (Adult Examination): The small exam room was intended to be the trauma room. It is far too small (9-½ by 11 feet for about 100 square feet). The ARPCF basis calls for a 200 sq foot room. There are two other rooms being used for exam rooms. They are about 144 sq ft each, and appear to in fair conformity with the ARPCF basis.
- d. Office / Administration / Records: A small portion of the waiting area has been sectioned off and holds 5 file cabinets, a small desk, and a small counter.
- e. Pharmacy / Lab: The pharmacy lab area is 106 square feet. Appears well set up and fairly efficient perhaps a little wider than is needed.
- f. Specialty Clinic / Health Education / Conference: None. The optometrist was using the trauma/exam and waiting rooms for a very congested day of events.
- g. Patient Holding / Sleeping Room: There is such an overabundance of storage in what would be the patient sleeping room.
- h. Storage: The back storage room has upper and lower cabinets with a sink, suggesting it was intended to be another small exam room, but it is used for storage.
- i. HC Toilet Facilities: There are two toilet facilities. The one in the small hallway is labeled staff toilet, and meets most handicap standards i.e. door size and wheel chair turning radius. This bathroom has only a toilet and sink. The second bathroom off of the main hallway has a toilet, sink, and tub. The tub is the standard 5 feet by 30 inches. The bathroom has enough space for

the appropriate turning radius, but does not have the handicap clearance at the door to get in and out.

- j. Janitors Room: There is a janitor's room with a service sink with approximately 40 sq feet it is long and narrow which makes it somewhat inefficient. It contains a water heater and service sink.
- k. Mechanical/Boiler Room: The boiler room was added up front in the waiting area (see plan). There is another mechanical room with a sewage sump in the middle of the facility, which is about 63 square feet and an inefficient use of space.
- l. Ancillary Rooms: N/A.

3) Functional Design Issues

The waiting area is too small. Its area has been reduced by a new boiler room. There is insufficient office space based on staffing levels. There is no specialty clinic space. Trauma access to an exam room is poor. There is not an effective trauma room.

4) Health Program Issues

- a. Patient comfort and privacy: Patient comfort and privacy seem to be good, although there isn't an adequate waiting area as it has been chopped up for other activities.
- b. Medical/Infectious Waste: Shipped to Nome.
- c. Infection Control: The building has no ventilation. The floors are reasonably sound, although they are vinyl tile. Some rubber base is missing; some doors are partially installed and incomplete.
- d. Insect and Rodent Control: No problems reported.
- e. Housekeeping: Average.

5) Utilities

- a. Water Supply: Water is piped over from a storage tank nearby.
- b. Sewage Disposal: Sewage is trucked out.
- c. Electricity: Overhead lines.
- d. Telephone: Overhead lines.
- e. Fuel Oil: Yes.

D. ARCHITECTURAL / STRUCTURAL CONDITION

1) Building Construction

- a. Floor Construction: 12 inch TJI 24 inches on center. They are stuffed with poor insulation and a plywood soffit is laid on the flanges of the TJI's. There is a center-bearing wall 2 x 6 treated material 24 inches on center down the center of the span. TJI's are going over the top. The foundation condition at the bearing walls, the outer walls, and the inner bearing piece could not be

seen, but it was reported to be something like a 4 x 12 treated that is just laid on the ground (mudsill). The floors have an insulating value of R-38.

- b. Exterior Wall Construction: Exterior walls appear to be 2 x 8 construction based on the widow sills. The exterior siding is T1-11 with 8 inch spacing. Soffits have some vents in them, as does the crawl space below the structure. The interior of the wall is gypsum.
- c. Roof Construction: Metal roofing over plywood, over lumber yard trusses. The trusses have 2 X 6 upper cords, and 2 X 4 lower cords. Ceiling sheetrock is 5/8 inch, and there is a vapor barrier. There is 12 inches of insulation for an R-38.
- d. Exterior Doors: Hollow metal.
- e. Exterior Windows: Alaska Windows (PVC) with thermally insulated glass.
- f. Exterior Decks, Stairs, and Ramps: 2 x 6 construction. The ramp is plywood, is a bit steep and goes to the back door not the front.

2) Interior Construction

- a. Flooring: Vinyl tiles over plywood underlayment.
- b. Walls: 2 x 4 construction with sheetrock on both sides.
- c. Ceilings: 5/8-inch gypsum against the bottom of the lumberyard wood trusses.
- d. Interior doors: Prefinished wood grain 1-³/₄ inch solid core door. Pretty good quality door for clinic activity. There is no handicap accessible hardware on the doors. The sump room has a 1-3/8 inch door, so there are some exceptions.
- e. Casework: Standard Melamine finishes on base and wall cabinets in the three exam rooms and the back storage room. Approximately 48 linear feet of base and upper cabinets. Kitchen has the same kind of cabinetry. See the floor plan for base and upper cabinet configurations.
- f. Furnishings: Mixed and matched/primarily steel and are in fair condition.
- g. Insulation: Floor insulation, R-38. Wall insulation R-24. Attic roof insulation R38. There are some eave vents.
- h. Tightness of Construction: Tightness of construction is good; there are some significant cracks in the drywall where the gable end vestibule is attached and where the boiler room was added.
- i. Arctic Design: The foundations and floor seem to be level and working well. A major problem is the sump overflowing. There was a significant amount of frozen water waste under the building.

3) Structural

- a. Foundations: The foundations were reportedly treated continuous wood footing pads under bearing walls on top of a gravel fill. There is a center open frame-bearing wall at mid span 2 x 6's at 24 inches on center. The floors in the clinic appear to be fairly level. The drywall work looks a little rough, but it seems like the building is holding up fairly well.

- b. Walls and Roof: Exterior walls appear to be 2 x 8 construction. Roof is lumberyard truss 24 inches on center. Gang nail trusses used.
- c. Stairs, Landings, and Ramps: Plywood ramps, 2 x 6 on landings and wood frame on the stairs.

E. MECHANICAL CONDITION

1) Heating System

- a. Fuel Storage and Distribution: An above ground single wall 300 gallon capacity heating fuel oil storage tank installed on a wood stand serves the clinic building hydronic heating boiler and the small space heater in the waiting area. The distance between the fuel tank and the building is less than the required distance of 5 feet.
- b. Boiler: An oil-fired 115,000 Btuh capacity hydronic boiler serves as the building heat generation system. The heat generation system appears to be in good condition.
- c. Heating Unit: A small oil-fired space heater provides additional heating in the waiting area.
- d. Heat Distribution System: The building is equipped with a hydronic finned tube heating system distributed throughout the building. The heating distribution piping is uninsulated in the boiler room. The overall system appears to be in good condition.

2) Ventilation System

- a. System: The building is not equipped with mechanical ventilation system. The code required ventilation is satisfied by the fact that most spaces are equipped with operable windows. A small heat recovery ventilator is installed in the attic to provide some degree of ventilation throughout the clinic building but appeared to have been abandoned and no is longer operational.
- b. Exhaust Air: The restrooms are not equipped with exhaust fans.

3) Plumbing System

- a. Water System: The building is served by the piped water supply system delivered from the piped municipal water system. The failed original copper interior domestic water distribution piping has been replaced by polymer tubing system installed throughout the building. The polymer tubing system currently in service is exposed and not well supported and should be replaced.
- b. Sewer System: The building sewer is connected to the piped municipal sewer collection system. The building sewer sump and pumping systems experienced a freeze failure previously and have been replaced by a manually controlled temporary sump pump system. Plan is in place to completely replace the existing system with a permanent exterior sump pump system with automatic controls.
- c. Fixtures: The fixtures observed at this building are in good condition.

F. ELECTRICAL CONDITION

1) Electrical Service

- a. The electrical service for this clinic is a 200-amp 120/240 volt AC single phase three wire system.
- b. The installed 1/0 copper service conductors are not adequately sized for 200 amp service, per NEC 310-15 and Table 310-16.

2) Power Distribution

- a. The feeder to the Main Distribution Panel (MDP) consists of three # 1/0 copper conductors and is undersized for a 200 amp feeder per National Electric Code (NEC) 310-15 and Table 310-16.
- b. The Clinic MDP is a 30-circuit Crouse-Hinds panelboard the MDP currently has 2 spare breaker spaces.
- c. The feeder does not contain a grounding conductor and must rely on the conduit for grounding between the MDP and service equipment.
- d. A partially open sump pit is located in front of the MDP. Clearance and accessibility are required by NEC 110-26.

3) Grounding System

- a. The electrical service does not appear to have a grounding electrode system, except for a partially driven single ground rod. Electrical services are required to be bonded to a grounding electrode system with a maximum resistance of 25 ohms.
- b. Interior metal piping of other mechanical systems are required to be bonded to the electrical service per NEC 250-104.
- c. The neutrals and grounds in the MDP are connected to the neutral bus. Neutrals and grounds must be isolated in all panels except service equipment, per NEC 250-142b.
- d. A ground rod is required to have min. 8' contact with earth and maximum 25 ohms to ground, per NEC 250-52c and 250-56, see #1 above.

4) Exterior Elements

- a. The clinic does not have exterior general use receptacles. The lack of exterior receptacles usually forces extension cords to be plugged in inside the building and routed through doorways, which is a violation of NEC Article 400.
- b. It is recommended to install individual branch circuits and GFCI protected receptacles for automotive block heaters, commonly known as head bolt heaters
- c. Exterior lighting is provided by light fixtures mounted to the wall above the entries to the clinic. Both fixtures are operational.

5) Electrical devices and lighting

- a. Duplex receptacles are the grounding type.
- b. Lighting fixtures throughout the clinic are predominantly 4' surface mounted fluorescent fixtures with wrap around lenses and appear to be in good condition.
- c. The wiring in the clinic is primarily non-metallic sheathed cable (NM). Health Care Facilities are required to have all receptacles and fixed electric equipment, in patient care areas, supplied by circuits in grounded metal raceways with an insulated grounding conductor.

6) Emergency System

- a. Non-lighted exit sign are currently installed. Illuminated exit signs are required, per IBC 1003.2.11.
- b. Four of five emergency light fixtures are not working. Emergency egress and exit lighting shall be powered and provide minimum footcandle levels, per IBC 1003.2.10 and 1003.2.11. Branch circuits for exit and emergency lighting shall comply with NEC 700-12.

7) Fire Alarm System

- a. Only 4 battery operated smokes detector were observed in the clinic. The smoke detectors do not appear to be operational. Residential type smoke detectors must be Listed and Labeled for use in Clinic (B Use Group) occupancy.

8) Telecommunication

- a. The Data Telecommunications system currently provides service to the telephone system and the "Telemed" remote diagnostic system.
- b. A wall mounted data cabinet is located on the wall above the filing cabinets in the office
- c. The number of data and telephone outlets is not sufficient for the clinic's current and future needs.

G. CIVIL / UTILITY CONDITION

1) Location of Building

- a. Patient Access: The building is located centrally in town.
- b. Service Access: There are roads on both side of the building.
- c. Other Considerations: The facility as located is on a relatively flat site, with a good location with regards to the rest of the community. Regarding expansion, there is probably 10 or 15 feet available to the backside gable end of the building. On the front side of the building there is a big storage conex filled with broken bags of cement. There are major power poles in both directions. It does seem the clinic could expand on the gable ends. The other major issue is if the village will be relocated to a less erosion prone site or not.

2) Site Issues

- a. Drainage: The site was reasonably well drained. Site is reported to be very sandy. The building is reported to sit on sand, no gravel, and no rocks.
- b. Snow: The side entrance appears to have problems with blowing and drifting snow. The front entrance roof drops snow on the entrance into the vestibule.

3) Proximity of Adjacent Buildings

- a. City buildings are across the street. There is a water storage tank and wind generators behind the city building. Community hall is on the far end of the clinic. The city garage is across from the city hall and the fire hall. The power plant is behind the water tank. Other than that it is surrounded by housing.

4) Utilities

- a. Water Supply: City piped.
- b. Sewage Disposal: City piped.
- c. Electricity: Overhead lines.
- d. Telephone: Overhead lines.

H. EXISTING FACILITY FLOOR PLAN (SITE PLAN IF AVAILABLE):

We have attached drawings, as we have been able to identify, find, or create as part of this report. We have endeavored to provide all drawings for all the sites; however, in some cases exact existing site plans were not available. We have provided as indicated below:

- | | |
|----|--|
| A1 | Existing Site Plan |
| A2 | Existing Facility Floor Plan |
| A3 | Existing Typical Wall Section |
| A4 | Existing Renovation and Addition Implications Floor Plan |
| A5 | Large Clinic Floor Plan |

4. DEFICIENCY EVALUATION

A. DEFICIENCY CODES:

The deficiencies are categorized according to the following deficiency codes to allow the work to be prioritized for funding. The codes are as follows:

01 Patient Care: Based on assessment of the facilities ability to support the stated services that are required to be provided at the site. Items required for the patients social environment such as storage, privacy, sensitivity to age or developmental levels, clinical needs, public telephones and furnishings for patient privacy and comfort.

02 Fire and Life Safety: These deficiencies identify areas where the facility is not constructed or maintained in compliance with provisions of the state mandated life safety aspects of building codes including the Uniform Building Code, International Building Code, The Uniform Fire Code, NFPA 101, The Uniform Mechanical and Plumbing Codes and The National Electrical Code. Deficiencies could include inadequacies in fire barriers, smoke barriers, capacity and means of egress, door ratings, safe harbor, and fire protection equipment not covered in other deficiency codes.

03 General Safety: These deficiencies identify miscellaneous safety issues. These are items that are not necessarily code items but are conditions that are considered un-safe by common design and building practices. Corrective actions required from lack of established health care industry safety practices, and local governing body code safety requirements. I.e. Occupational Safety Health Administration (OSHA) codes & standards.

04 Environmental Quality: Deficiencies based on Federal, State and Local environmental laws and regulations and industry acceptable practices. For example this addresses DEC regulations, hazardous materials and general sanitation.

05 Program Deficiencies: These are deficiencies that show up as variations from space guidelines evaluated through industry practices and observation at the facility site and documented in the facility floor plans. These are items that are required for the delivery of medical services model currently accepted for rural Alaska. This may include space modification requirements, workflow pattern improvements, functional needs, modification or re-alignment of existing space or other items to meet the delivery of quality medical services. (Account for new space additions in DC 06 below)

06 Unmet Supportable Space Needs: These are items that are required to meet the program delivery of the clinic and may not be shown or delineated in the Alaska Primary Care Facility Space Guideline. Program modifications requiring additional supportable space directly related to an expanded program, personnel or equipment shall be identified in this section; for example additional dental space,

specialty clinic, storage, or program support space that requires additional space beyond the established program.

07 Disability Access Deficiencies: The items with this category listing are not in compliance with the Americans with Disabilities Act. This could include non-compliance with accessibility in parking, entrances, toilets, drinking fountains, elevators, telephones, fire alarm, egress and exit access ways, etc.

08 Energy Management: These deficiencies address the efficiency of lighting, heating systems/fuel types and the thermal enclosures of buildings, processes, and are required for energy conservation and good energy management.

09 Plant Management: This category is for items that are required for easy and cost efficient operational and facilities management and maintenance tasks of the physical plant.

10 Architectural M&R: Items affecting the architectural integrity of the facility, materials used, insulation, vapor retarder, attic and crawlspace ventilation, general condition of interiors, and prevention of deterioration of structure and systems.

11 Structural Deficiencies: These are deficiencies with the fabric of the building. It may include the foundations, the roof or wall structure, the materials used, the insulation and vapor retarders, the attic or crawl space ventilation and the general condition of interior finishes. Foundation systems are included in this category.

12 Mechanical Deficiencies: These are deficiencies in the plumbing, heating, ventilating, air conditioning, or medical air systems, interior mechanical utilities, requiring maintenance due to normal wear and tear that would result in system failure.

13 Electrical Deficiencies: These are deficiencies with normal or emergency power, electrical generating and distribution systems, interior electrical and communications utilities, fire alarm systems, power systems and communications systems within a building that should be repaired or replaced on a recurring basis due to normal wear and tear that would otherwise result in system failure.

14 Utilities M&R: This category is used for site utilities for incoming services to facilities that are required for the building to be fully operational. Deficiencies may include sewer and water lines, water wells, water tanks, natural gas and propane storage, electric power and telecommunications distribution, etc.

15 Grounds M&R: Real property grounds components that should be replaced on a recurring basis due to normal wear and tear. Deficiencies with respect to trees, sod, soil erosion, lawn sprinklers, parking, bridges, pedestrian crossings, fences, sidewalks & roadways, and site illumination etc. are considerations.

16 Painting M&R: Any painting project that is large enough to require outside contractors or coordination with other programs.

17 Roof M&R: Deficiencies in roofing, and related systems including openings and drainage.

18 Seismic Mitigation: Deficiencies in seismic structural items or other related issues to seismic design, including material improperly anchored to withstand current seismic requirements effect. The elements under consideration should include the cost incidental to the structural work like architectural and finishes demolition and repairs.

B. PHOTOGRAPHS

We have provided photographs attached which are noted to describe the various deficiencies described in the narratives and itemized in the summary below. The photos do not cover all deficiencies and are intended to provide a visual reference to persons viewing the report who are not familiar with the facility.

We have included additional photos as Appendix B for general reference. These are intended to add additional information to the specific deficiencies listed and to provide general background information.

C. COST ESTIMATE GENERAL PROVISIONS

1) New Clinic Construction

- a. Base Cost: The Base Cost provided in Section VI of this report is the direct cost of construction, inclusive of general requirements (described below) and contingency for design unknowns (an estimating contingency). The base cost is exclusive of overhead and profit, mark-ups, area cost factors and contingencies. Material costs for the project are all calculated FOB Anchorage and labor rates are based on Davis Bacon wages, regionally adjusted to Anchorage. Transportation costs, freight, Per Diem and similar costs are included in the base costs. The Project Factors and Area Cost Factor are multipliers of the base costs.
 - General Requirements are based on Anchorage costs without area adjustment. It is included in the Base Cost for New Clinics. These costs are indirect construction cost not specifically identifiable to individual line items. It consists of supervision, materials control, submittals and coordination, etc. The general requirements factor has not been adjusted for Indian Preference.
 - The Design Unknowns Contingency is an estimator's contingency based on the schematic nature of the information provided, the lack of any real design, and the assumption that any project will encompass related work not specifically mentioned.
- b. Project Cost Factors
 - Equipment Costs for new medical equipment has been added at 17% of the cost of new floor space.
 - Design Services is included at 10% to cover professional services including engineering and design.
 - Construction Contingency is included at 10% of the Base Costs to cover changes encountered during construction.

- Construction Administration has been included at 8% of the Base Costs. This is for monitoring and administration of the construction contract.
- c. Area Cost Factor: The Area Cost Factor used in the cost estimates for this facility is shown in Section VI of this report. The area cost factors are taken from a recent study completed for the Denali Commission for statewide healthcare facilities. The numbers are the result of a matrix of cost variables including such items as air travel, local hire costs, room and board, freight, fire protection equipment, foundation requirements, and heating equipment as well as contractor costs such as mobilization, demobilization, overhead, profit, bonds and insurance. These parameters were reconsidered for each village, following the site visit, and were modified, if necessary.
- d. Estimated Total Project Cost of New Building: This is the total estimated cost of the project, including design services. The construction contract will be work subject to Davis Bacon wages, and assumes construction before year-end 2001. No inflation factor has been applied to this data.

2) Remodel, Renovations, and Additions

- a. Base Cost: The Base Cost provided in the specific deficiency sheets is the direct cost of construction, exclusive of overhead and profit, mark-ups, area cost factors and contingencies. Material costs for the project are all calculated FOB Anchorage and labor rates are based on Davis Bacon wages, regionally adjusted to Anchorage. Most of the deficiency items do not constitute projects of sufficient size to obtain efficiency of scale. The estimate assumes that the projects are completed either individually, or combined with other similar projects of like scope. The numbers include moderate allowances for difficulties encountered in working in occupied spaces and are based on remodeling rather than on new construction costs. Transportation costs, freight, Per Diem and similar costs are included in the base costs. The General Requirements, Design Contingency and Area Cost Factors are multipliers of the base costs.
 - The cost of Additions to clinics is estimated at a unit cost higher than new clinics due to the complexities of tying into the existing structures.
 - Medical equipment is calculated at 17% of Base Cost for additions of new space only and is included as a line item in the estimate of base costs.
- b. General Requirements Factor: General Requirements Factor is based on Anchorage costs without area adjustment. The factor is 1.20. It is multiplied by the Base Cost to get the project cost, exclusive of planning, architecture, engineering and administrative costs. This factor assumes projects include multiple deficiencies, which are then consolidated into single projects for economies of scale. The general requirements factor has not been adjusted for Indian Preference.
- c. Area Cost Factor: The Area Cost Factor used in the cost estimates for this facility is shown in Section VI of this report. The area cost factors are taken from a recent study completed for the Denali Commission for statewide healthcare facilities. The numbers are the result of a matrix of cost variables including such items as air travel, local hire costs, room and board, freight, fire protection equipment, foundation requirements, and heating equipment as well as contractor costs such as mobilization, demobilization, overhead, profit, bonds and insurance. These parameters were reconsidered for each village, following the site visit, and were modified, if necessary.
- d. Contingency for Design Unknowns (Estimating Contingency): The Design Unknowns Contingency is an estimator's contingency based on the schematic nature of the information provided, the lack of any real design, and the assumption that any project will encompass related work not specifically mentioned. The factor used is 1.15.

-
- e. Estimated Total Cost: This is the total estimated bid cost for work completed under Davis Bacon wage contracts, assuming construction before year-end 2001. This is the number that is entered in the front of the deficiency form. No inflation factor has been applied to this data.
- f. Project Cost Factors: Similar to new clinics, the following project factors have been included in Section VI of this report.
- Design Services is included at 10% to cover professional services including engineering and design.
 - Construction Contingency is included at 10% of the Base Costs to cover changes encountered during construction.
 - Construction Administration has been included at 8% of the Base Costs. This is for monitoring and administration of the construction contract.
- g. Estimated Total Project Cost of Remodel/Addition: This is the total estimated cost of the project including design services, the construction contract cost for work completed under Davis Bacon wages and assuming construction before year-end 2001. No inflation factor has been applied to this data.

5. SUMMARY OF EXISTING CLINIC DEFICIENCIES

The attached sheets document the deficiencies; provide recommendations on how to make repairs or accommodate the needs and provide a cost estimate to accomplish the proposed modifications. The summary addresses individual deficiencies. If all deficiencies were to be addressed in a single construction project there would be cost efficiencies that are not reflected in this tabulation.

These sheets are reports from the Access Data Base of individual Deficiencies that are compiled on individual forms and attached for reference.

Refer to Section VI. New Clinic Analysis for a comparison of remodel/addition to new construction.

6. NEW CLINIC ANALYSIS

The analysis of whether a new clinic is required is based on the Denali Commission standard of evaluation that "New Construction is viable if the cost of Repair/Renovation and Addition exceeds 75% of the cost of New Construction".

We have therefore determined the cost of a New Clinic Construction to meet the Alaska Rural Primary Care Facility (ARPCF) Space Guidelines for a village of 562 people (2000 Census). We have also determined the cost of Repair/Renovation & Addition to the existing Clinic to meet the same ARPCF Space Guidelines.

A. The cost of a New Denali Commission 2,459 SF Large Clinic in Shishmaref is projected to be:

▪ Base Anchorage Construction Cost per s.f.		\$183
▪ Project Cost Factor:	@ 45%	\$ 82
Medical Equipment	17%	
Construction Contingency	10%	
Design Fees	10%	
Construction Administration	8%	
▪ <u>Multiplier for Village</u>	<u>@ 1.704</u>	<u>\$187</u>
Adjusted Cost per SF		\$452

Projected Cost of a New Clinic: 2,459 s.f. x \$452 = \$1,110,386
 (not inclusive of site development costs)

B. The cost of the Repair/Renovation and Additions for the existing Clinic are projected to be:

▪ Code & Condition Repairs/Renovations		
Cost from Deficiency Summary		\$310,310
▪ Remodel/Upgrade work (See Def. Code 01)		
100% of clinic 1,938 SF = 1,938 SF @ \$138/SF		\$266,869
▪ Additional Space Required by ARPCF (See Def. Code 06)		
○ Base Anchorage Cost		\$226
Medical Equipment		\$ 32
Additional Costs –		\$ 98
General Requirements	20%	
Estimation Contingency	15%	
○ <u>Multiplier for Village</u>	<u>@1.704</u>	<u>\$251</u>
<u>Adjusted Cost per SF</u>		<u>\$607</u>
Total Addition Cost of 521 SF @ \$607		\$315,633

Projected Cost Factor	@28%	\$249,987
Construction Contingency	10%	
Construction Administration	8%	
Design Fees	10%	

Total Cost of remodel/addition \$1,142,799

C. Comparison of Existing Clinic Renovation /Addition versus New Clinic:

Ratio of Renovation/Addition versus New Clinic is:

\$1,142,799 / \$1,110,386 = 1.03 x cost of New Clinic

Based on Denali Commission standard of evaluation; the remodel/addition costs are more than 75% of the cost of new construction. A new clinic is recommended for this community.

D. Overall Project Cost Analysis:

The overall project cost analysis below incorporates land, multi-use, utility costs, and road access costs, and project management fees if any are associated with the project.

Item	Quantity	Units	Unit Cost	Area Adjustment Factor	Total Cost	Allowable under "Small" Clinic Process (yes/no)
Primary Care Clinic (Allowable)	2,459	SF	\$265.00	1.704	\$1,110,386	yes
Clinic (Non-allowable portion)	0	SF	\$265.64	1.704	\$0	no
Land	15,000	SF	\$2.00	1	\$30,000	yes
Multi-Use Facility Design Cost	0	LS	\$0.00	1	\$0	yes
Multi-Use Facility Construction Cost	0	LS	\$0.00	1	\$0	no
Utility Extension/Improvements	1	LS	\$15,000	1	\$15,000	yes
Road access & parking lot improvements	1	LS	\$5,000	1	\$5,000	yes
Subtotal Project Cost					\$1,160,386	
Project Management Fees					<u>Unknown</u>	
Total Project Cost					Unknown	

7. CONCLUSIONS AND RECOMMENDATIONS

The existing Shishmaref clinic is space deficient by 521 gsf. Its plumbing systems are considerably deficient. Most notable is a sewage sump that is internal in the building. It overflows and contaminates the air environment in the facility and soils below the building with raw sewage.

Additions and renovations will cost about the same (1.03 times) as construction of a new clinic. Therefore, based on cost, a new clinic is recommended. As the village location has been threatened with coastal erosion, a new clinic would need to be designed for future relocation. At the time of the survey the village had not yet identified a new site.

Appendix A: Specific Deficiencies Listings

The attached sheets represent the individual deficiencies identified for this project and the corrective action required to meet current codes and standards of construction. The deficiencies are further summarized in Section V. Summary of Existing Clinic Deficiencies.

Appendix B: Reference Photographs