

Evacuation Transport for General and Vulnerable Populations

The following are researched observations regarding evacuation transport planning. All numbers are based on actual residents and transport vehicles in-play during the 2010 flood unless otherwise noted.

While several long-term care facilities were evacuated during the 2009 and suffered financial loss, they intended to not evacuate during the 2010 event unless there was an emergency. This raised a fundamental question as to whether or not we have the transport resources to move general residents and residents of long-term care facilities at the same time.

During the Flood of 2010, Elim, Pioneer House and Villa Maria were triaged for evacuation. The same buildings were also interviewed to estimate the time required to evacuate their facilities. These estimates of transport needed are based on their experiences of evacuating in 2009.

Assumptions about evacuations

- There are two types of evacuation – planned or incident-driven evacuation. Planned evacuations will occur more smoothly, are safer and would take less time than evacuations reacting to an incident – like a breach.

Demographic	Decision	General process
Vulnerable population - evacuation – those living in long-term care facilities	Planned if mandatory order given, incident-driven if not mandated	People taken directly to new location. This means transport is unavailable until the vehicles return from new location.
Neighborhood evacuation. This includes vulnerable populations living in houses.	Likely incident-driven	People taken to transfer point, then to a new location. Local buses return for another pickup.
General evacuation. This includes vulnerable populations living in houses.	Likely incident-driven	People taken to transfer point, then to a new location. Local buses return for another pickup.

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Availability of appropriate transport

- There are six vehicle types (arranged from most available to least available) that would be used for evacuations – see table below
- While more are possible, we can count on 121 wheelchair slots. Most of the out-state vehicles are vans with low ground clearance and thus not reliable for use in 6” or more of standing water.
- Transport used for general population will pick up people in neighborhoods and take them to a transfer point (such as Cheney School in West Fargo) and return to pick up additional people. This keeps local drivers local.

Vehicle	Approximate capacity – local	Exhaust/water level	Most Appropriate Application
Yellow buses	5000	2’	General
Motor coach buses + City Buses	500	6”-12”	General and some assisted living residents
Wheelchair capable transport	59 wc Valley Bus 12 Ready Wheels <u>50 wc MAT buses</u> 121 total Other Possibilities 22 wc Moorhead 47 wc Out-state vans 97 total	12”-18” 12”-18” 12-18”” 6”-12”	Skilled nursing residents
Basic Life Support Ambulance *		6”	Special needs
Advanced Life Support Ambulance *	13	6”	Special needs
Bariatric Ambulance *	2	6”	Special needs

*more available via mutual aide

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Characteristics of vulnerable populations in long-term care facilities

- In a sampling of 388 residents triaged in 2010, about 32.5% of long-term care residents will have special needs
 - 23 (5.9%) oxygen dependent
 - 25 (6.4%) elopement risk (dementia; may wander-off)
 - 2 (0.5%) IVs and other tubes
 - 3 (0.8%) bariatric – 350 lbs. or more
 - 32 (8.2%) infectious or colonized MRSA (Drug-resistant staph infections)
 - 18 (4.6%) dialysis
 - 23 (5.9%) hospice

- The following is a breakdown of residents (2010 flood) of the eight most vulnerable facilities:

Facility	Amb	T	W	CN	S	TOTAL
Pioneer House Assisted Living for Seniors	34	4	0	4	0	42
Elim Rehab and Care Center	22	16	47	31	6	122
Waterford at Harwood Groves	147	5	2	0	0	154
Villa Maria	41	34	49	0	4	128
Riverview Place	147	0	3	0	0	150
Manor Care	20	25	10	31	6	92
Good Samaritan	38	0	0	3	0	41
Edgewood	151	7	7	2	0	167
	600	91	118	71	16	896

Amb = ambulatory

T = resident is able to transfer themselves from wheelchair to seat

W = needs wheelchair – wheelchair capable transport needed

CN = is unable to transfer themselves from wheelchair to seat without assistance, but could make the trip in ambulatory seating.

S = stretcher transfer only – ambulance or AmbuBus needed

- Unlike other evacuations to move people to a transfer point, vulnerable populations are loaded and taken to their destination. The transport is unavailable for several hours.

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Time needed to evacuate vulnerable populations

- Assuming ambulance transfers are completed in advance and there is a single loading point,
 - 30 residents per hour can be evacuated in dry conditions in a planned evacuation
 - 15-20 residents per hour can be evacuated in an incident-driven evacuation like 6" of standing water
 - The number of vehicles that can tolerate more than 6" of water will be severely reduced.
 - 27 vans with 44 wheelchair slots from out-state may not come as many are vans that would not be useful in water levels much over 6".
 - 22 vans from Moorhead Public Schools may be available if not used by them
- Based on the assumptions above, the following estimates the time needed to evacuate each of the long-term care facilities:
 - These tables assume three-hour travel time to Grand Forks– out and back. This is optimistic as the greatest numbers of facilities are in Bismarck – a minimum of six hours.
 - Unloading residents would require the same amount of time as loading in good conditions – the rate of 30 residents per hour.

Facility	Residents	30/hr.	Travel	Unload	Available
Pioneer House	42	1.4	3	1.4	5.8
Elim	122	4.1	3	4.1	11.2
Waterford	154	5.1	3	5.1	13.2
Villa Maria	128	4.3	3	4.3	11.6
Riverview Place	150	5.0	3	5.0	13.0
Manor Care	92	3.1	3	3.1	9.2
Good Samaritan	41	1.4	3	1.4	5.8
Edgewood	167	5.6	3	5.6	14.2

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- In a planned evacuation, some vehicles would be available in 6 hours, most become available 9-14 hours later
- Most vehicles would need a second driver to complete their mission.

Facility	Residents	15/hr.	Travel	Unload	Available
Pioneer House	42	2.8	3	1.4	7.2
Elim	122	8.1	3	4.1	15.2
Waterford	154	10.3	3	5.1	18.4
Villa Maria	128	8.5	3	4.3	15.8
Riverview Place	150	10.0	3	5.0	18.0
Manor Care	92	6.1	3	3.1	12.2
Good Samaritan	41	2.7	3	1.4	7.1
Edgewood	167	11.1	3	5.6	19.7

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- In an incident-driven evacuation, some vehicles would be available 7 hours, most become available 12-19 hours later.
- Most vehicles would need a second driver to complete their mission.

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Wheelchair transport needed beyond long-term care facilities

In working with Paula Algaard in MAT Transit, they have identified more than 150 regular users of MAT's Para-transit services who live in the city and would need to be evacuated as part of the general or neighborhood evacuations. In addition to MAT Para-Transit, there is enough demand to keep four private businesses (a total of 52 wheelchair slots) operating.

If an incident were to occur requiring evacuation of general population and long-term care facilities, there is not enough wheelchair-capable transport to do both. The 121 wheelchair slots would be needed for long-term care facilities leaving more than 150+ living in traditional housing with little local transport for 10-14 hours or more. (This may be reduced if wheelchair capable transport came from other communities – i.e. Grand Forks and Bismarck – but very likely considerably fewer given their populations.) Put bluntly, the lack of a mandatory evacuation of the 118 wheelchair-bound people living in long-term care facilities puts more than 150 wheelchair-bound people living in houses at risk.

Fargo Public Schools will be working with Valley Bus to purchase buses with full-length track systems that can be converted to wheelchair slots. Each vehicle with a track system would hold 20 wheelchairs. This District has use for two or possibly three, but no more. The vehicles would be best suited for vulnerable populations in houses and then taken to transfer points along with the general population.