Fire Services: Bush Buggies

Presented to County Council
August 20, 2024

Kneehill COUNTY

Overview: ICF Agreements

- In 2019, Council's signed Inter-municipal Collaboration Frameworks with our neighbouring municipalities. Individual fire sub agreements were created, negotiating operating and capital costs with each Acme, Carbon, Linden, Trochu and Three Hills.
- These 2019-2024 agreements stipulate who owns the equipment, many at shared rates, and the replacement schedules for apparatus, ensuring municipalities are saving for future purchases.
- The Bush Buggies were considered a majority use by the County and were either purchased based on years of service left or were kept by municipalities but a clause to replace them by KC was added. These are transition purchases.
- We are here today to clarify the next steps in replacing the Bush Buggies, including the level of service Council will consider with these units.

Kneehill COUNTY

Calls Review: 2021 to 2023

In Kneehill County	2021	2022	2023	totals
Structure	12	2	7	**21**
Outside/Grass	58	29	51	**138**
MVC's	45	43	46	**134**
Medical Assists	53	58	74	**185**

In Urban Borders	2021	2022	2023	totals
Structure	6	7	9	**22**
Outside/Grass	4	8	13	**25**
MVC's	2	10	6	**18**
Medical Assists	118	144	177	**439**

Kneehill COUNTY

Overview: Bush Buggy details in ICF's

ACME: County to replace 1 Bush Buggy in 5-7 years (in 2025-27): *We do not own the current unit*

CARBON: County to replace at 15 to 20-year life (2019-23)

We do not own the current unit

TROCHU: County to replace in 2030: *We own this*

THREE HILLS: County to replace at 15 to 20-year life (2025-29): *We own this*

TORRINGTON: 2018

LINDEN: No Bush Buggy

Kneehill COUNTY

Grass/Wildland Fire Response

Kneehill County and departments collaborated on the 2024 Standard Operating Guidelines which includes Grass and Wildland Fire Response:

- Lighter apparatus (Bush Buggies) go into the fields for initial attack on the fire
- Larger apparatus limited to hard pack and solid road base (perimeter with pump and roll)
- Primary purpose of tenders is to provide water shuttle to feed Bush Buggies and provide water shuttles at field and wildland fires

Bush Buggies provide rapid response with limited water. They are mobile and can carry firefighters to hot spots where needed, as well as small wildland firefighting equipment.

Incident Command decides best tactics for the scene and use of responding equipment & personnel for success in extinguishing the fire, in line with SOG's and Level of Service Policy.

Typing of Bush Buggies

We based our typing on provincial model for Wildland Urban Interface according to their guidelines:

Minimum Requirements	Engine Type						
	Structure		Wildland				
	E1	E2	E3	E4	E5	E6	E7
Tank minimum capacity (litres)	1130	1130	1890	2830	1510	560	180
Pump minimum flow (LPM)	3780	1890	568	189	189	189	38
At rated pressure (kPa)	1034	1034	1724	689	689	689	689
Hose: 65 mm (meters)	360	300					
Hose: 38 mm (meters)	150	150	300	90	90	90	
Hose: 25 mm (meters)			150	90	90	90	60
Ladders per NFPA 1901	Yes	Yes					
Master stream: 1893 LPM	Yes						
Pump and roll			Yes	Yes	Yes	Yes	Yes
Maximum GVWR (kg)					11793	8845	6350
Personnel Maximum (minimum)	4 (4)	4 (4)	4 (4)	4 (3)	4 (3)	4 (3)	4 (2)

Option 1: Type 7 Bush Buggy

Sustain Level of Service, with adds

Benefits

1. Trucks are light weight units built on 3/4 T and 1 T chassis
2. This sustains our current service level by bringing all units up to a baseline standard.

Limitations

1. Pump is only capable of 38 litres per minute (10 gallons per minute). Need 2 pumps in new builds.
2. Does not have capacity to pump in larger diameter hose due to pressure of pump.
3. Low ground clearance in current designs, this would change in new builds.
4. Lighter gross vehicle weight limits water needed and will need to fill more frequently on scene.
5. Limited storage due to weight and water carried.
6. Will require trucks to be built in pieces and then combined, by a qualified fire equipment company, working with our fire staff on this project.

Cost $320,000

Option 2: Type 6 Bush Buggy

Increase Level of Service

Benefits

1. 2 pumps – Same as Type 5 & 7
2. Tank capacity is triple that of a Type 7
3. Weight - Trucks are built for higher weight capacity, increasing the volume of water that can be transported. Recommend a 550 or 5500 chassis.
4. Will be set up to use larger diameter hose (38 mm Forestry hose).
5. Towing capability for future expansion if needed (required for Carbon due to terrain).
6. Better storage design and options. Weight capacity of the truck allows for this over a type 7.
7. Option of front monitor for pump and roll capability – Will offer thermal protection to vehicle not available in type 7

Limitations

1. Water capacity may still be low for what is needed on scene but will have more capacity than Type 7.

Cost $390,000

Option 3: Type 5 Bush Buggy

Exceed Level of Service Capabilities

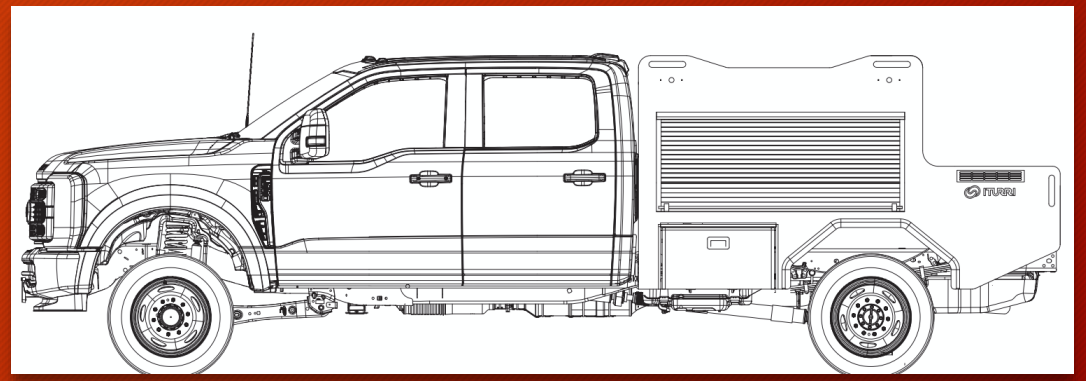
Benefits

1. Same Pump set up as Type 6
2. Tank capacity is triple that of a Type 6 (from 560 to 1510 litres)
3. Trucks are built for higher gross weight capacity, increasing the volume of water that can be transported.
4. Towing capability for future expansion if needed.
5. Front mounted monitor to expand pump and roll capability.
6. Option for a rapid-fire attack apparatus for structure and wildland purpose. Type 6 and 7 do not have water capacity to make this possible.

Limitations

1. Cost is higher

Cost $470,000



Recommendation

- Option 2 will meet current Kneehill County needs for the Three Hills and Carbon trucks for 2025.
- We would revisit the Acme/Trochu replacement needs for 2030.
- Collaborative design process to be used to build a standardized truck specification as the process has been for all recent apparatus purchases.
- Ensure truck designs are in line with County strategies for fire services based on Hazard Identification and Risk Analysis with historic data considered.
  - The drier and windier conditions that are occurring right now are a huge risk factor that we would mitigate with a Type 6 truck.