DES Snow Operations Program **1/24/19**

The intent to of this document is to provide additional description of certain elements which are considered fundamental to a shift change facility on the 26th and Old Dominion site, including parking, the chain shop, reporting/staging area, and the use of brine. It is our understanding that these elements have raised concerns with the Task Force members as they were not clearly defined in the County Board's charge for this master planning process and were first articulated as part of Meeting #2, which took place on December 6, 2018. The adopted charge for the 26/OD Task Force includes the following language under Winter Storm Response Services: "The needed support includes a shift change/break-restroom area for up to 30 snow plow operators and five support staff during a 12-hour shift. Parking for staff personal vehicles is needed, either on site or at adjacent facilities."

Purpose for North Side Facility

Existing snow operations remain inefficient due to a single shift change facility inconveniently located in the southern end of the County. This presents several logistical challenges which result in a delayed response time for residents of northern Arlington. During a typical snow event, operators must return to the Trades Center at the beginning and end of their shift and anytime repairs are needed to faulty truck equipment such as tire chains, plows, or spreaders – a common occurrence during a typical snow event. The resulting loss of productivity with this approach represents an ineffective use of County funds as additional operators are typically needed to work extra shifts to complete the necessary work throughout the entire County. Additionally, delays in road treatment and snow clearance before and during major snow events also increase the risk of potential vehicular accidents and lower pedestrian safety in and around the roadway system. For these reasons, a change facility located on the 26th and Old Dominion site has long been considered an absolute necessity to improve the County's snow operations program.

Required Parking for Winter Weather Operations

The minimum amount of parking during a winter weather emergency event is as follows:

Vehicle Type	**Parking # on site**	**Parking # on or off site**	**Notes**
County Salt Trucks	24		
County Supervisor Trucks		4	
Snow Equipment	1		
Driver/Supervisor POV/Employee POV		64	2 Chain shop employees, 2 admin, 4 supervisor, 24 drivers (2 shifts)

Total	25	68	93 on- & off-site

The County's Real Estate Bureau is actively reaching out to adjacent property owners to see if they would be interested in developing an arrangement whereby County staff could use their parking spaces for personal vehicles. This request for off-site parking would only apply during the peak loading condition of a shift change occurring during a major snow event, for the purpose of minimizing the need for on-site parking. It is worth repeating that the County does not believe allocating an extensive portion of the 26/OD site to surface parking would represent the best use of this space and has committed to finding creative solutions that still meet County parking requirements.

Chain shop

During most snow events, some of the treatment trucks utilize chains on the tires to increase traction and maneuverability. Prior to leaving the operational facility, the chains are attached to the vehicle inside a single bay garage by a team of technicians. The single bay provides enough space to park the truck, store chains and simple tools, and provide an adequate safe space (heated and well lit) for the technicians to place the chains over the tires. In total, the necessary mass of a chain shop, including all of the above referenced equipment, is comparable to a tall residential 2-car garage. While specialized tools or equipment (i.e. lifts or compressors) are not necessary for this operation, chain shops in other jurisdictions are typically used to also house the hydraulics, pumps, and mixing equipment necessary to produce brine which protects them from the outdoor elements

The County currently conducts all chain installations and repairs (which are frequent during snow operations) at the Trades Center. Chained trucks must travel slower than unchained vehicles, which exacerbates the lost production when chains break or need adjustment. The chain shop is also utilized for simple in-shift equipment replacement/adjustments, such as windshield wipers, plow pins and fittings, and spreaders.

The County does not anticipate any operational use of the Chain Shop in the off-season.

Snow Shift Change Facility

During large events with multiple operational periods, the County has long sought to conduct north side operations from the 26th and Old Dominion site. Use of this site as a reporting and staging area could increase productivity by reducing lost operational time for the trucks servicing northern sections of the County who must return to the Trades Center in the far south portion of the County every 12 hours. A north side operational facility on this site would also reduce congestion of equipment, personnel, and services which occur at the Trades Center, which would improve the County's response and service provision. The County believes the new structure required to provide a break-restroom area for staff, as well as their associated on-site parking, could also be utilized as a community meeting space in the off-season. This approach would

result in an efficient use of limited space while accommodating several community and County needs.

Brine

Brine is a solution of chloride and water that can be utilized in place of traditional salt granules (rock salt) in many circumstances. In most cases when compared to salt, brine is a more effective treatment that substantially reduces the amount of chlorides introduced to the environment. Additionally, brine can be applied more precisely to the road and remains present on the pavement surface for many days, as opposed to rock salt which is scattered across the pavement surface and further dispersed by traffic. Brine is also considered a more efficient treatment as the solution is made of approximately 23% chloride, can be applied with higher precision, and represents superior persistence once placed.

Brine is most effective as a “pre-treatment” because it can be judiciously applied several days in advance of storms, a technique which immediately disrupts bonding of snow and pavement. Conversely, rock salt becomes a more effective tool as snow accumulation increases. The resulting traffic friction is combined with precipitation to provide traction, which catalyzes the rock salt. Brine tanks can take various configurations, with approximately two tanks typically occupying a typical parking space (8ft x 20ft).

As an alternative to brine, Arlington County piloted beet juice for several seasons, which uses chlorides to melt snow and ice. The beet juice created many operational challenges and introduced additional environmental impacts (particularly increased Oxygen Demand in waterways) when compared to the use of brine. Therefore, beet juice is no longer used.