Ministry of Municipal Affairs & Housing

Association of Municipalities of Ontario

ONTARIO CENTRE FOR MUNICIPAL BEST PRACTICES

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BEST PRACTICE SUMMARY REPORT
RO – WC – 04 - 04

Roads – Winter Control – Experimentation with Shift Deployment models: 2-shift schedule

Practice Identification: **Roads Winter Control – experimentation with shift deployment models: 2-shift schedule:**

Case Study Municipality: City of Belleville

Key Word: Operational Procedures

Benefits

- **Unit cost reduction through overtime cost avoidance**
- **Compliance with "hours of work" legal requirements**
- **Avoid staff burnout from excessive hours of work during prolonged winter event periods**
- **Improved response time to evening winter events through a second already-deployed shift – avoids call-out "lag time"**

1. Description of the Practice

The City of Belleville delivers winter control services across a mixed road system (primary/secondary/local) consisting of more than 500 paved lane kilometers in 2001. Belleville offers an urban winter event response featuring 16 combined units (31 "event response lane kilometers" per unit). The entire system is maintained to a bare-pavement service level. System pass coverage standards for plowing are in place according to road category: 2-3 hours for the primaries and 4-5 hours for secondary

roads. Belleville's winter control service is all directly-delivered by City staff. Belleville's MPMP winter control unit costs were among the lowest compared to other mixed road systems.

Decisions on how best to deploy winter control manpower (seasonal shift structures) are a critical driver of direct-delivery service costs and quality. The blend of winter control straight time versus overtime service hours varies greatly across the municipal sector. Single shift, double shift, and three shift models are all in place. Local winter event conditions play a role in determining the optimal shift structure. The best practice is not a one-size-fits-all "perfect" shift structure, but rather a process of experimenting with and learning from various options in order to find one that is best suited to local conditions at the time.

In recent years, Belleville has changed from a traditional single-shift model to a 24/5 two-shift model. In Belleville, the first shift runs Monday-Friday from 7:30 am to 4:30 pm. The second shift runs from 11:00 pm to 7:30am. Two winter patrol shifts, using internet-delivered weather data to support event respond/not respond decision-making, support both shifts. The 6.5-hour service gap between the day and night shifts is covered on an overtime call-out basis if necessary, with each shift covering a portion of the service gap, thereby remaining in compliance with "hours of work" legislated requirements. Before the day shift is released from duty, the supervisor determines whether some or all of the crew should be kept on overtime to respond to incoming storm events. Similarly, the supervisor determines whether conditions warrant calling the night crew in early.

Belleville moved to this 24/5 two-shift model in order to control overtime costs, prevent staff burnout, and improve night-time response times with expanded "ready to go" coverage, thereby eliminating the considerable lag associated with a call-in. The two-shift model has been achieved primarily by means of voluntary shift selection by the existing crew, rather than by hiring additional operators. In order to avoid the hiring of additional City staff for a weekend shift, an overtime call-out strategy for the weekend has been retained from the old single shift model. Average annual over-time cost avoidance targets of $120,000 have been consistently achieved by Belleville, vis-a-vis the former single-shift model, while evening event response times have improved. This net saving represents 12% of Belleville's 2001 winter control expenditures.

2. Evaluation of the Practice

Efficiency:
The overtime net cost avoidance by moving from a single shift to a two-shift model has contributed to Belleville's record as one of the lowest-cost winter operators among comparable municipalities. It has done so by a process of carefully considered trial and error, followed by learning and evaluation, supported by results measurement.

Effectiveness:
Belleville has arrived at a shift structure which it is right for it at this point in time, insofar as it has delivered measurable improvement in terms of costs and event response times - given distinct local weather conditions and locally defined service level expectations.

3. Replication of the Practice

A continuous improvement process that can evaluate historical patterns of overtime costs and the impact of call outs on event response times is realistic and practical for mid-size and large municipalities.

Most collective bargaining situations will allow for multi-shift deployment of municipal staff at straight time rates during weekdays. A willingness to experiment, analyze results, and embrace new solutions is the sole requirement in terms of organizational culture.

4. Contacts

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Note: **See RO –WC – 04 – Methodology Report for a description of the practice identification methodology, using 2001 MPMP data)**