

Evaluation of CONFIRE Dispatch Processing Changes

January 1 through December 31, 2021

Background

In the continuing effort to provide efficient, effective, and rapid deployment of emergency fire and EMS resources, CONFIRE has adopted two new strategies for reducing 911 emergency call processing times. These include:

1. Adopting a “Quick Launch” criteria where specific caller complaints (CPR, Shortness of Breath, Chest Pain, Unconscious) temporarily forgo the standard EMD question process so that they are dispatched immediately. The questioning process then takes place after the call is forwarded to responding units.
2. Expanding the use of “Auto-Dispatch” on specific call types. This automates the notification of responding units which reduces processing time and workload.

The initial transition to these changes was made on June 7, 2021 using a limited number of determinant codes. CONFIRE Fire Chiefs directed staff to begin expanding these protocols to more determinant codes in August 2021. This included the addition of Charlie and Bravo calls. The impacts of these changes are reflected in the tables below. Note that the transition process to include Bravo level calls was not completed by December 31, 2021 so any changes in that category are not reflected in this report. As the pool of data continues to grow, there is a clear trend emerging of decreasing call processing times. The validity of the reports will continue to increase over time as more data is available.

Summary of Findings

- The overall call processing time interval from call pick-up to when the first responding unit is notified of the call decreased by up to 21% for Echo and 17% for Delta level calls. Other call types showed a smaller decrease, and non-EMD fire/rescue showed an increase of 5 second, or 3.1%. (See Table 1).
- The implementation of the “Quick Launch” protocol resulted in a decrease of 13% for Echo calls and 9% of Delta calls in the time interval between when a CONFIRE dispatcher answers a 911 call to when the call is sent to queue (See Table 2). The processing times for these categories have potential to decrease further as dispatchers become more familiar with the process change.
- The implementation of the “Auto-Dispatch” protocol resulted in a decrease of 92% for Echo calls, 75% for Delta calls, and 19% for Charlie calls in the time interval between when a call is placed in queue to when the first responding unit is notified of the call (See Table 3). During this report period, this protocol was only applied to Echo, Delta,

and Charlie calls¹. Bravo level calls have been approved and are pending CAD reconfiguration. Applying auto-dispatch to other call types, including EMS calls that do not receive an EMD code, could result in further reduction of overall call processing time and should be considered.

Table 1: Impacts on overall call processing.

This table identifies the time lapse from when a 911 call is first answered at CONFIRE to when the first responding unit is notified of the call. These numbers reflect the overall impact of the dispatching processing changes.

	Alpha	Bravo	Charlie	Delta	Echo	No Determinant Code	All EMS	All Non-EMS Fire/Rescue
Pre June 7, 2021	0:03:29	0:03:23	0:03:37	0:03:02	0:02:18	0:02:33	0:03:12	0:02:41
Post June 7, 2021	0:02:59	0:03:26	0:03:22	0:02:31	0:01:49	0:02:32	0:02:53	0:02:46
Difference	00:00:30	0:00:03	00:00:15	00:00:31	00:00:29	-00:00:01	00:00:19	0:00:05
	-14%	1.5%	-7%	-17%	-21%	-1%	-10%	3.1%

Table 2: Impacts of “Quick Launch”.

This table focuses on the time interval between when a 911 call is first answered at CONFIRE to when the call is sent to queue. This interval is where the impacts of Quick Launch are most evident. Since the criteria for Quick Launch is almost always in the Echo or Delta determinant code category, the most significant changes are found in those call types.

	Alpha	Bravo	Charlie	Delta	Echo	No Determinant Code	All EMS	All Non-EMS Fire/Rescue
Pre	0:03:09	0:03:06	0:03:19	0:02:43	0:02:00	0:02:16	0:02:53	0:02:16
Post	0:02:38	0:03:06	0:03:07	0:02:28	0:01:45	0:02:17	0:02:39	0:02:16
Difference	00:00:31	00:00:00	00:00:12	00:00:15	-00:00:15	0:00:01	-00:00:14	0:00:00
	-17%	0%	-6%	-9%	-13%	1%	-8%	0%

¹ CAD reconfiguration of Charlie calls occurred in mid-November. The impact of auto-dispatch on these calls should be more apparent as more data is gathered.

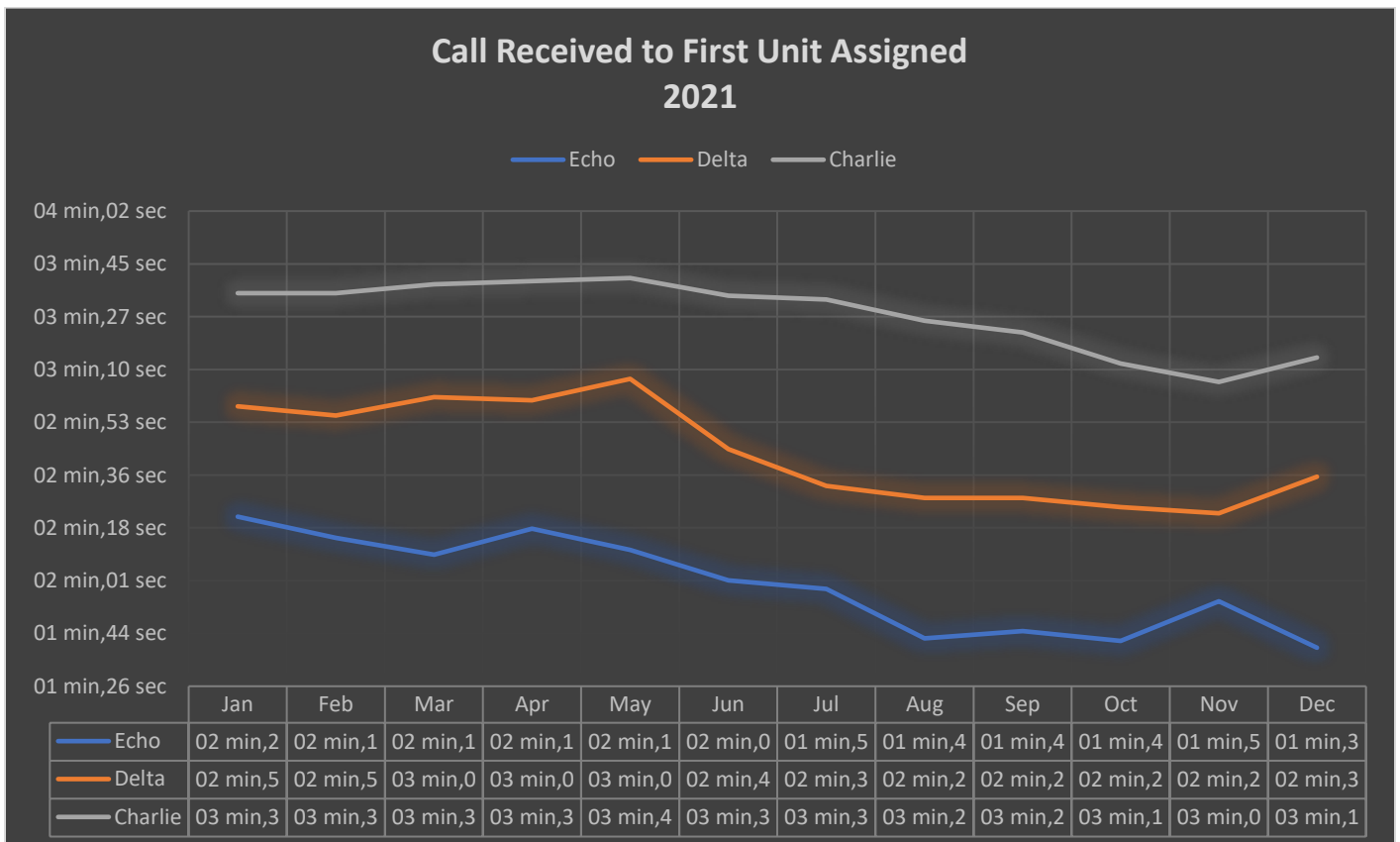
Table 3: Impacts of “Auto Dispatch”.

This table focuses on the time interval between when a 911 call is sent to Queue to when the first responding unit is alerted to respond to the call. This interval is where the impacts of Auto Dispatch are most evident. Because CONFIRE is currently only using Auto Dispatch on Delta and Echo calls, the most significant changes are found in those call types.

	Alpha	Bravo	Charlie	Delta	Echo	No Determinant Code	All EMS	All Non_EMS Fire/Rescue
Pre	0:00:31	0:00:27	0:00:27	0:00:28	0:00:24	0:00:35	0:00:29	0:00:40
Post	0:00:31	0:00:30	0:00:22	0:00:07	0:00:02	0:00:34	0:00:24	0:00:45
Difference	0:00:00	0:00:03	00:00:05	00:00:21	00:00:22	-00:00:01	00:00:05	0:00:05
	0%	11%	-19%	-75%	-92%	-3%	-17%	12%

Figure 1: Call processing time trends for Echo, Delta, and Charlie level calls for calendar year 2021.

Figure 1 shows the overall monthly 90th percentile dispatch processing time (call pick-up to first unit assigned) on a continuum throughout calendar year 2021.



Reporting Conventions

The above impact measurements were based on CONFIRE CAD data using the following conventions:

1. All data is taken directly from CONFIRE's CAD server.
2. Reporting range for "Pre-Implementation" period was from July 7, 2020, to June 6, 2021. Reporting range for "Post-Implementation" period and was June 7, 2021 through December 31, 2021.
3. Calls with a total call processing time (Phone pick-up at CONFIRE to first unit assigned) of greater than 5 minutes were excluded from the reporting. These calls are evaluated separately as part of ongoing QA by CONFIRE staff. The longer processing times on these calls generally result from atypical factors such as language barriers, caller disconnect, lack of a valid location, etc., and not from dispatcher or system issues.
4. "Quick Launch" criteria includes caller complaints of shortness of breath, chest pain, CPR in progress, or unconsciousness. When these complaints are recognized by the dispatcher, the call is immediately forwarded to Queue for dispatching. The time savings for these calls is therefore measured as the difference between Call Pickup time and Call Entered into Queue time.
5. "Auto Dispatch" uses an automated CAD process to move calls from Queue to 1st Unit Assigned instead of a manual process performed by dispatchers. The time interval that captures these events is the difference between Call Entered Queue and First Unit Assigned time stamps.
6. Non-EMS, Fire/Rescue calls are those calls that require an emergency resource response but are not classified as medical emergencies. This includes (but not limited to) all fire types, ringing alarms, Haz-mat, technical rescue, watercraft and aircraft incidents, and technical rescue. Traffic collisions were considered mostly medical in nature and are not included in this grouping.