



Northville Plymouth Fire Advisory Board Meeting Agenda

Wednesday, December 2, 2020

4:00 p.m.

Plymouth City Hall 201 S. Main St. Plymouth, MI

- 1) **Roll Call** – Chair Marques Thomey, Vice Chair Brian Turnbull, Members Jim Rachwel, Paul Sincock, Pat Sullivan

- 2) **Begin Discussion on Interlocal Agreement Renewal Options**

- 3) **Adjournment**

ADMINISTRATIVE UPDATE

To: Northville Plymouth Fire Advisory Board
CC: S:\Manager\Sincock Files\Memorandum - NPFAB Fire Contract Background 12-02-20.doc
From: Paul J. Sincock -City Manager
Date: 11/25/2020
Re: December 2, 2020 Meeting Background Information

This meeting is starting discussions related to the Inter-Governmental contract between the City of Northville and the City of Plymouth for fire services. We are providing some background information that may assist with initiating the overall discussion. As you are aware, the contract is set to expire on June 30, 2023, with two-year automatic renewals after that point.

As background information we have provided the following information:

- Questions on Fire/EMS from the fall 2019 Citizen Survey conducted by Eastern Michigan University.
- First Amended and Restated Interlocal Fire Service Agreement
- Fire Portions of ICMA Public Safety Operations Analysis – January 7, 2019, including Fire Services Data Analysis Report. *(This is the third in a series of ICMA consultant reviews of Fire Services. The first was prior to the agreement between the two cities. The second was a review of operations after approximately one year. The third was this review of current operations, as well as a review of options available to the City of Plymouth at the conclusion of the current agreement.)*

If you have any questions regarding this material, please feel free to contact me directly.

How satisfied are you with fire services?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-------------------|-----------|---------|---------------|--------------------|
| Valid | Very dissatisfied | 1 | .5 | .5 | .5 |
| | Dissatisfied | 3 | 1.5 | 1.5 | 2.0 |
| | Neither | 29 | 14.4 | 14.6 | 16.7 |
| | Satisfied | 48 | 23.9 | 24.2 | 40.9 |
| | Very satisfied | 117 | 58.2 | 59.1 | 100.0 |
| | Total | 198 | 98.5 | 100.0 | |
| Missing | System | 3 | 1.5 | | |
| Total | | 201 | 100.0 | | |

How satisfied are you with emergency medical services?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-------------------|-----------|---------|---------------|--------------------|
| Valid | Very dissatisfied | 1 | .5 | .5 | .5 |
| | Dissatisfied | 1 | .5 | .5 | 1.0 |
| | Neither | 39 | 19.4 | 19.8 | 20.8 |
| | Satisfied | 44 | 21.9 | 22.3 | 43.1 |
| | Very satisfied | 112 | 55.7 | 56.9 | 100.0 |
| | Total | 197 | 98.0 | 100.0 | |
| Missing | System | 4 | 2.0 | | |
| Total | | 201 | 100.0 | | |

Eastern Michigan University Citizen Survey Fall 2019

**FIRST AMENDED AND RESTATED
INTERLOCAL FIRE SERVICE AGREEMENT
BETWEEN
THE CITY OF NORTHVILLE
AND
THE CITY OF PLYMOUTH**

This Agreement, entered into this 3rd day of August, 2015, by and between:

The City of Northville, 215 West Main Street, Northville, Michigan, 48167, a municipal corporation, hereinafter referred to as "Northville;" and

The City of Plymouth, 201 South Main Street, Plymouth, Michigan 48170, a municipal corporation, hereinafter referred to as "Plymouth."

WHEREAS, Public Act 7 of the Public Acts of 1967, extra session, as amended, provides Northville and Plymouth with the authority to enter into an interlocal agreement; and

WHEREAS, Northville and Plymouth each desire to enter into an interlocal Fire Service Agreement;

WHEREAS, Northville and Plymouth entered into an interlocal Fire Service Agreement on or about February 28, 2011; and

WHEREAS, Pursuant to Section 10 of the interlocal Fire Service Agreement, Northville and Plymouth each desire to amend certain provisions of, and to restate the Agreement;

NOW THEREFORE, Northville and Plymouth hereby agree as follows:

1. GENERAL AGREEMENT. Northville and Plymouth hereby agree that Northville will provide and Plymouth will receive fire services from Northville subject to the terms and conditions of this Agreement. Apart from mutual aid agreements, each party hereto agrees that neither party will enter into any other agreements for fire service with any other municipality, community, or entity without first obtaining consent from the other party to this Agreement.

2. DEFINITIONS. For the purposes of this Agreement, the terms in this section shall be defined as follows:

(a) "Northville" shall mean the City of Northville, Michigan.

- (b) "Plymouth" shall mean the City of Plymouth, Michigan
- (c) "Municipality" shall mean either the City of Plymouth or the City of Northville, and when plural it shall mean both the City of Northville and the City of Plymouth.
- (d) "City of Northville Fire Department" shall mean the fire department of the City of Northville.

3. LEVEL OF FIRE SERVICE. The level of fire services to be provided by the City of Northville Fire Department shall be as follows:

- (a) Fire suppression, fire safety inspections, and fire prevention education;
- (b) Total staffing of both fire stations shall consist of up to 60 part-time, paid on-call fire fighters, all of who shall be at all times considered employees of Northville. Staffing shall also include a full-time Fire Chief, and such other part-time or full-time staff positions as may be deemed necessary, all of who shall be at all times considered employees of Northville; The proposed addition of any full-time staff positions will be reviewed by the Advisory Board.
- (c) Three fire stations: one located at 215 West Main Street, Northville, Michigan, 48167 (to be owned by Northville); one located at 201 South Main Street, Plymouth, Michigan, 48170 (to be owned by Plymouth); and one located at 186 E. Spring Street, Plymouth, Michigan, 48170 (to be owned by Plymouth) and
- (d) EMS response at the basic life support (BLS) level. Advanced life support (ALS) services will be provided by private ambulance services and/or mutual aid resources.

The level of fire services rendered by the City of Northville Fire Department to each municipality shall be the same, so that the residents and businesses of each municipality, taken as a whole, receive services on the same basis as if they were located in the other municipality. Changes in the level of the fire services shall be made in accordance with Section 10 of this Agreement.

4. ADMINISTRATIVE AND FINANCIAL RESPONSIBILITY. The City of Northville Fire Department shall be administered by Northville in accordance with this Agreement, and specifically, as follows:

- (a) Budget Approval. No later than March 1st each year, Northville shall submit to Plymouth a proposed budget for the next fiscal year for the City of Northville Fire Department. Plymouth shall submit its comments to Northville no later than March 21st. Northville shall have the sole authority to adopt the annual City of Northville Fire Department budget, in

a form which is consistent with provisions of this Agreement, and taking due note of Plymouth's comments.

- (b) Financial Records. Northville shall maintain a complete set of accounting records for the City of Northville Fire Department, in sufficient detail to meet the provisions of this Agreement and the interests of Northville and Plymouth. These records shall be open to inspection by Plymouth at any time during the regular Northville business hours upon three (3) days notice of a request to see them. The City of Northville Fire Department accounting records shall be subject to an annual public audit. As soon as possible following the completion of the annual audit, Northville shall submit a final statement to Plymouth regarding the total costs for the City of Northville Fire Department for the year being audited.
- (c) Personnel Administration. All personnel in the City of Northville Fire Department shall be, at all times, Northville employees and subject to Northville's personnel regulations. Northville shall have sole discretion and authority with respect to the hiring and termination of any and all personnel of the City of Northville Fire Department. Northville agrees to take into consideration any reasonable requests by Plymouth with respect to personnel issues.
- (d) Station Staffing. Plymouth may request that Northville provide on-site staffing at the Plymouth stations during designated periods of time. Such staffing will be provided by part-time, on-call paid fire fighters scheduled to cover such duties. The cost of providing such staffing will be paid solely by Plymouth, in addition to the other payments called for in this Agreement. In the event that Northville requests on-site staffing at the Northville Station during designated periods of time, the cost of providing such staffing will be paid solely by Northville.
- (e) Northville Fire Department Documents. Northville's City Manager shall furnish Plymouth's City Manager with a copy of all regular financial and activity reports regarding the City of Northville Fire Department. Plymouth's City Manager shall furnish Northville's City Manager a copy of all communications to and from Plymouth official regarding the City of Northville Fire Department. The recipient of these documents shall treat them in the same manner that they are treated by the provider. Documents which are confidential shall be marked as such, and shall be treated in accordance with the provider's instructions, provided, that such documents which are distributed to Northville's City Council shall also be distributed by Plymouth's City Manager to Plymouth's City Commission, and vice versa.
- (f) Payment for Service. Northville will take its budget estimate for the given year, determine Plymouth's percentage of that estimate, and then divide this number by twelve (12). Northville will bill Plymouth for this

determined amount in twelve (12) monthly installments. A mid-year budget adjustment will be made after the adoption of the 2nd quarter budget amendments. Plymouth's monthly installment will be adjusted based on the amended budget. In addition to these monthly payments, any extra services rendered to Plymouth shall be billed in quarterly installments. Payments shall be due on or before twenty (20) days from the date of the invoice. Northville may add a service charge of one percent (1%) on the first (1st) day of each month to any past due balance. It is understood that in the event the budget estimate is different than that actual audited expenditures for a given year, then an adjustment will be made at the end of the fiscal year with either a credit or charge issued based upon actual expenditures for that year.

- (g) Mutual Aid Association. Each party to this Agreement shall maintain its membership in the Western Wayne County Fire Department Mutual Aid Association, and shall pay all dues, assessments, and charges associated with such membership, in addition to any other payments called for in this Agreement.

5. ORDINANCES, CODES, AND ENFORCEMENT. It is the intent of the parties to this Agreement that the City of Northville Fire Department shall operate under a single set of ordinances, codes, and policies, and should have the same legal authority in both jurisdictions, to the greatest extent possible, on the basis that it is in the best interest of both parties and their respective citizens that this be done. Therefore, Northville and Plymouth agree to make every effort possible to maintain identical ordinances and regulations related to the City of Northville Fire Department to the greatest extent possible which is consistent with each jurisdiction's needs to provide for the health, safety, and welfare of its respective citizens. To this end, Northville and Plymouth agree as follows:

- (a) Plymouth agrees to take all known necessary steps to authorize the City of Northville Fire Department and its personnel to operate within Plymouth on the same basis as in Northville, as well as use and/or operate any equipment and use/occupy any premises which may be purchased and/or belong to Plymouth.
- (b) Northville agrees to provide Plymouth with a copy of Northville's ordinances and building and safety codes, which are related to the operation of the City of Northville Fire Department. Northville agrees to notify Plymouth each time it intends to modify such ordinances and codes, with a copy of the proposed amendment or change, and the legal and operational rationale for it.
- (c) Plymouth agrees to maintain all Plymouth ordinances and building and safety codes, which are related to the operation of the City of Northville Fire Department, in the same form as equivalent to Northville's

ordinances and codes, unless Plymouth determines for good reason that it is in the best interests of Plymouth to maintain a variation in such ordinances and codes. In such case, Plymouth shall notify Northville, in writing, of the specific nature of such variation and reason for it. If Plymouth determines that a variation is necessary, then Northville agrees that the City of Northville Fire Department shall enforce the Plymouth version within Plymouth on the same basis that it enforces Northville's version within Northville.

- (d) Northville's City Manager and Plymouth's City Manager shall coordinate the consideration of such amendments and changes by their respective boards, so that the adoption of such amendments and changes become effective on the same date to the greatest extent possible.

6. BASIS FOR SHARING FIRE SERVICE COSTS. It is the intent of Northville and Plymouth that the costs of the City of Northville Fire Department shall be shared on an equitable basis that represents the amount of the benefit derived by each party from those services, and which results in both parties receiving an equitable share of the benefits from improved services and reduced costs. To that end, it is agreed that the costs of the City of Northville Fire Department shall be shared as follows:

- (a) Initial Start-Up Costs. The parties acknowledge that there will be certain start-up costs associated with the implementation of this Agreement. Based upon that understanding, Plymouth agrees that it will be solely responsible for any costs associated with the implementation of this Agreement. Such costs shall include:
 - (1) Any and all administrative costs incurred by both Northville and Plymouth necessitated by the implementation of this Agreement.
 - (2) Any and all costs associated with the recruitment, physical examinations, interviewing, hiring, and training of up to 25 certified fire fighters during the calendar year 2011.
 - (3) Any and all costs associated with any necessary apparatus, equipment, or gear to be used by the newly hired fire fighters described in section 6(a)(2). Any and all such apparatus, equipment and/or gear must be approved by Northville.
 - (4) Any and all equipment which is purchased in order to operate the Plymouth station. Any and all such equipment must be approved by Northville.
 - (5) Any and all building improvements necessary to create the Plymouth stations. Any and all such building improvements must be approved by Northville.

- (b) Fire Service Costs. The percentage of Plymouth's portion of the estimated budget will be determined each year based upon the percentage of runs attributable to Plymouth in the prior calendar year.
- (c) Mutual Right to Request Review of Costs Determination. Each party to this Agreement reserves the right to re-exam and/or request a review of the cost sharing formula set forth in this Agreement if that party deems it to be necessary to do so.
- (d) Purchase and Ownership of Apparatus. Except for the aerial apparatus described in section 6(f), any piece of firefighting or EMS apparatus acquired by or for the use of the City of Northville Fire Department will be paid for and titled in the name of the City in which such apparatus will initially be stationed. If the cost of the apparatus is in excess of \$70,000, the acquisition of the apparatus will be reviewed by the Advisory Board as specified in section 8(f). Any and all such apparatus must be approved by Northville, and the operation and use of the apparatus will be the responsibility of the City of Northville Fire Department, regardless of which City has purchased or holds title to the apparatus. Any piece of apparatus may be temporarily reassigned to a different station, as may be necessary to meet the operational needs of the City of Northville Fire Department.
- (e) Return of Contributions to the Equipment Replacement Fund. Plymouth shall be entitled to a refund of or credit for contributions made to the Northville Equipment Replacement Fund between February 28, 2011 and the date of this First Amended and Restated Interlocal Fire Service Agreement, to the extent that such contributions were designated for the replacement of apparatus.
- (f) Aerial Apparatus. Notwithstanding any other provision of this Agreement, the parties agree that any aerial apparatus acquired on or after July 1, 2015 will be paid for by both Northville and Plymouth in accordance with the cost sharing provisions of this Agreement, as provided in section 6(b). Whichever City does not hold title to the aerial apparatus will be listed as a secured party on the title. In the event of the termination of this Interlocal Fire Service Agreement, regardless of which City holds title to the aerial apparatus, the aerial apparatus will remain a shared asset of both Northville and Plymouth for the life of the apparatus, with each City having the right to access, train on and to use the aerial apparatus. The cost of the aerial apparatus will continue to be shared until it is fully paid for.

7. EQUITY IN ASSETS. Plymouth shall own and have equity in all apparatus purchased by Plymouth pursuant to this Agreement, any equipment purchased by Plymouth as part of the initial start-up costs as provided in sections 6(a)(3) and

6(a)(4), and any improvements to the Plymouth stations. All other ownership and equity in any other equipment, apparatus, or other property shall solely be that of Northville.

8. ADVISORY BOARD. The parties to this Agreement agree to the following:

- (a) Each party to this Agreement shall participate in an Advisory Board. The board shall consist of one elected official from each City who shall be appointed by his or her respective City for a term of two (2) years and the City Manager of each party to this Agreement. The two elected officials, and two City Managers will select a fifth member, who shall have experience as a firefighter or officer in another paid on call department, who shall serve for a term of two (2) years. The board shall meet quarterly for the purpose of reviewing the operations of the City of Northville Fire Department and its financial affairs. The members of the board shall serve without compensation, but shall be reimbursed for actual and necessary expenses incurred in the performance of board duties. A vacancy on the board shall be filled by the original appointing governing body for the remainder of the unexpired term. Should any appointed elected member of the governing body cease to serve in such elected capacity his/her membership shall end and require appointment by the affected governing body.
- (b) The Advisory Board shall adopt its own rules of procedure and shall keep a record of its proceedings. A majority of the members shall constitute a quorum for the transaction of business, and the affirmative vote of a majority of all members shall be necessary for the adoption of a motion or resolution. The members of the board may be removed by the appointing governing body.
- (c) The business which the Advisory Board may perform shall be conducted at a public meeting of the board held in compliance with Michigan Open Meetings Act. Public notice of the time, date, and place of the meeting shall be given in the manner required by the Michigan Open Meetings Act.
- (d) A writing prepared, owned, used, in possession of, or retained by the Advisory Board in the performance of any official function shall be made available to the public in accordance with the requirements of the Michigan Freedom of Information Act.
- (e) The Advisory Board shall review Northville's annual operating budget for the City of Northville Fire Department prior to the annual budget being submitted for adoption to the Northville City Council, and make such suggestions or recommendations it deems appropriate.
- (f) The Advisory Board shall review requests for capital expenditures in

excess of \$70,000.00. If the board deems such an expenditure appropriate, it shall request that said expenditure be approved by way of resolution to be passed by Northville, or in the case of apparatus to be purchased by Plymouth, to be passed by Plymouth.

- (g) The Advisory Board will review any request to create any additional full-time position(s) and make such suggestions or recommendations it deems appropriate.
- (h) If any conflict arises between the parties to this Agreement, the Advisory Board may meet, at any time, to try and resolve any such conflict. Such a meeting may be requested by either party to this Agreement at any time.
- (i) Each party to this Agreement acknowledges that the Advisory Board may provide recommendations to each party to this Agreement, but does not have to the power to issue a decision or recommend a resolution which is binding on either party to that Agreement. This power is reserved to the governing body of each party to this Agreement or as otherwise set forth herein.

9. INSURANCE AND INDEMNIFICATION. The parties to this Agreement agree to the following:

- (a) To the fullest extent permitted by law, Plymouth agrees to defend, indemnify, and hold harmless, Northville and all of its employees, officials, and agents, from and against any and all claims, injury, damage, cost, expense, lawsuit, or liability (including actual attorney's fees) arising out of, resulting from, or occurring in connection with the negligent performance of any work or any activity associated with or related to this Agreement by any employee, agent, or official of Plymouth.
- (b) To the fullest extent permitted by law, Northville agrees to defend, indemnify, and hold harmless, Plymouth and all of its employees, officials, and agents, from and against any and all claims, injury, damage, cost, expense, lawsuit, or liability (including actual attorney's fees) arising out of, resulting from, or occurring in connection with the negligent performance of any work or any activity associated with or related to this Agreement by any employee, agent, or official of Northville.
- (c) Plymouth agrees that it will procure and maintain during the life of this Agreement the insurance requirements listed below on all apparatus owned by Plymouth and the Plymouth station, and shall furnish to Northville certificate(s) of insurance as follows:

1. Workers' Compensation Insurance including Employers' Liability Coverage, in accordance with all applicable statutes of the State of Michigan.

2. General Liability Insurance on an "Occurrence Basis" with limits of liability not less than \$5,000,000 per occurrence and aggregate. Coverage shall include the following extensions: (A) Contractual Liability; (B) Completed Operations; (C) Broad Form General Liability Extensions or equivalent, if not already included.

3. Motor Vehicle Liability including Michigan No-Fault Coverages, with limits of liability not less than \$5,000,000 per occurrence combined single limit for Bodily Injury, and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

4. Additional Insured: General Liability and Motor Vehicle Liability, as described above, shall include an endorsement stating the following shall be *Additional Insured*: The City of Northville, all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof. It is understood and agreed by naming the City of Northville as additional insured, coverage afforded is considered to be primary and any other insurance the City of Northville may have in effect shall be considered secondary and/or excess.

5. Cancellation Notice: Workers' Compensation Insurance, General Liability Insurance, and Motor Vehicle Liability Insurance, as described above, shall be endorsed to state that Thirty (30) days, Ten (10) days for non-payment of premium, Advance Written Notice of Cancellation, Non-Renewal, Reduction, and/or Material Change shall be sent to: (complete with responsible parties name and address).

6. Proof of Insurance Coverage: The City of Plymouth shall provide the City of Northville at the time the contracts are returned for execution, certificates referencing all coverage as required above.

7. If any of the above coverages expire during the term of this contract, the City of Plymouth shall deliver renewal certificates and/or policies to City of Northville at least ten (10) days prior to the expiration date.

Plymouth agrees that in the event of loss to any of the items listed above for which it must maintain insurance, Plymouth must replace such items in the event of loss.

- (d) Northville shall procure and maintain during the life of this Agreement the insurance requirements listed below on all other items and issues relative to and/or necessitated by this Agreement, except for those listed in section 9(c), and furnish to Plymouth certificate(s) of insurance as follows:

1. Workers' Compensation Insurance including Employers' Liability Coverage, in accordance with all applicable statutes of the State of Michigan.

2. General Liability Insurance on an "Occurrence Basis" with limits of liability not less than \$5,000,000 per occurrence and aggregate. Coverage shall include the following extensions: (A) Contractual Liability; (B) Completed Operations; (C) Broad Form General Liability Extensions or equivalent, if not already included.

3. Motor Vehicle Liability including Michigan No-Fault Coverages, with limits of liability not less than \$5,000,000 per occurrence combined single limit for Bodily Injury, and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

4. Additional Insured: General Liability and Motor Vehicle Liability, as described above, shall include an endorsement stating the following shall be Additional Insured: The City of Plymouth, all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof. It is understood and agreed by naming the City of Plymouth as additional insured, coverage afforded is considered to be primary and any other insurance the City of Plymouth may have in effect shall be considered secondary and/or excess.

5. Cancellation Notice: Workers' Compensation Insurance, General Liability Insurance, and Motor Vehicle Liability Insurance, as described above, shall be endorsed to state that Thirty (30) days, Ten (10) days for non-payment of premium, Advance Written Notice of Cancellation, Non-Renewal, Reduction, and/or Material Change shall be sent to: (complete with responsible parties name and address).

6. Proof of Insurance Coverage: The City of Northville shall provide the City of Plymouth at the time the contracts are returned for execution, certificates referencing all coverage as required above.

7. If any of the above coverages expire during the term of this contract, the City of Northville shall deliver renewal certificates and/or policies to City of Plymouth at least ten (10) days prior to the expiration date.

10. MODIFICATION, DURATION, AND TERMINATION OF THIS AGREEMENT.

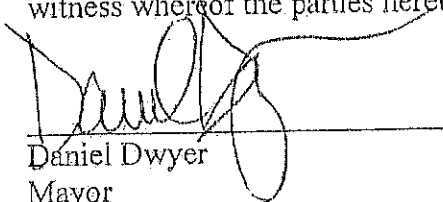
- (a) This Agreement may be modified at any time by mutual approval of both the Northville City Council and the Plymouth City Commission.
- (b) This Agreement shall continue in effect at least until June 30, 2023. Thereafter, this Agreement shall continue in effect on a two (2) year basis, unless either party gives written notice to the other party on or before December 31st of any year, that that party wishes to terminate this Agreement effective on January 1st of the third year following the year in which the notice was given.
- (c) Upon the termination of this Agreement by the expiration of its term, or by mutual consent of the parties to this Agreement, Plymouth shall receive all apparatus purchased and owned by Plymouth, equipment purchased by Plymouth as a part of the initial start-up-costs, and improvements to the Plymouth stations as referenced in sections 6(a)(3), 6(a)(4) and 6(d). All other equipment, apparatus, or other property shall solely be that of Northville. Provided, however, that the ownership and use of the aerial apparatus referenced in section 6(f) shall be as provided for in that section.
- (d) In the event that Plymouth breaches this Agreement by withdrawing prior to the time specified in section 10(b), without the consent of Northville, Northville and Plymouth agree that Plymouth shall be liable for the following stipulated damages:
 - (a) A monetary payment equal to two (2) times the payment due under this Agreement for the year prior to the breach;
 - (b) All payments then due and owing under this Agreement; and
 - (c) Plymouth will remain responsible for its percentage of payments due on any equipment purchased by Northville until that equipment is fully paid off. The percentage of payments due will be determined by the payment due under this Agreement for the year prior to the breach. Plymouth will in addition remain responsible for its percentage of payments due in connection with the aerial apparatus, as provided in section 6(f).
- (e) In the event that Northville breaches this Agreement by withdrawing prior to the time specified in section 10(b), without the consent of Plymouth, Northville and Plymouth agree that Northville shall be liable for the following stipulated damages:
 - (a) A monetary payment equal to two (2) times the payment due under this Agreement for the year prior to the breach; and
 - (b) Plymouth shall no longer be responsible for any further payments

as to any equipment purchased by Northville.

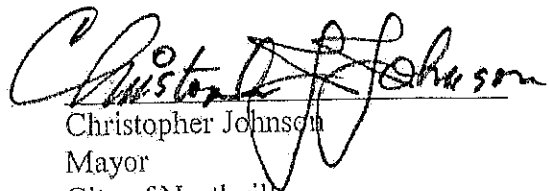
- (c) Northville and Plymouth will remain responsible for their percentage of payments due in connection with the aerial apparatus, as provided in section 6(f).

11. Severability. Should any provision, paragraph, section or part of this Agreement be found void or unenforceable by a court of competent jurisdiction, the remainder shall continue in full force and effect.

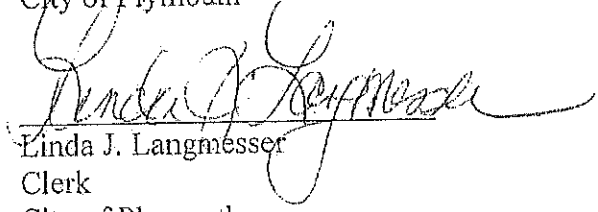
This Agreement was approved and the execution of it was authorized by Resolution of Northville's City Council on 3rd day of August, 2015; and by Resolution of Plymouth's City Commission on 3rd day of August, 2015; in witness whereof the parties hereto have placed their hands and seal below:



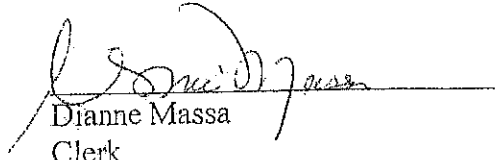
Daniel Dwyer
Mayor
City of Plymouth



Christopher Johnson
Mayor
City of Northville



Linda J. Langmesser
Clerk
City of Plymouth



Dianne Massa
Clerk
City of Northville

DEPARTMENT OF PUBLIC SAFETY OPERATIONS ANALYSIS

PLYMOUTH, MICHIGAN



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ICMA

Exclusive Provider of Public Safety Technical Services for
International City/County Management Association

January 7, 2019

SECTION 1. EXECUTIVE SUMMARY

The Center for Public Safety Management, LLC (CPSM) was commissioned to review the operations of the Plymouth Police Department as well as the operations of Northville Fire Department which provides fire services to the City on a contractual basis. CPSM also looked at the EMS operations provided by Huron Valley EMS.

CPSM made these reviews to determine the best course of action for the City of Plymouth to provide Public Safety Services to the community. CPSM considered four options: continuing "as is" with police services directly provided by Plymouth and fire services continuing from Northville; Plymouth assuming oversight and administration of a stand-alone fire department as well as the existing police department; merging police and fire into a Department of Public Safety through the City of Plymouth; and looking at contracting with another entity for fire services. While our analysis covered all aspects of the department's operations, areas of focus of this study include: identifying appropriate staffing of the department given the workload, community demographics, and crime levels; the effectiveness of the organizational structure; and efficiency and effectiveness of division/unit processes.

We analyzed the department workload using operations research methodology and compared that workload to staffing and deployment levels. We reviewed other performance indicators that enabled us to understand the implications of service demand on current staffing. Our study involved data collection, interviews with key operational and administrative personnel, focus groups with line-level department personnel, on-site observations of the job environment, data analysis, comparative analysis, and the development of alternatives and recommendations.

Based upon CPSM's detailed assessment of the City of Plymouth, it is our conclusion that the police department, overall, provides exceptional quality law enforcement services. The existing contract agreement between Plymouth and Northville provides fire services but the culture of the two organizations is in conflict. CPSM found the staff, assigned to the Plymouth station, is professional and dedicated to the mission of the department; descriptions of the department and city in charrettes and one-on-one meetings consistently produced the consensus that a collegial or family atmosphere existed. The major challenge that stretches across, and contributes to many other issues within the department, is different cultures and leadership expectations between the City of Plymouth and Northville.

Another major issue that conflicts the two city response is the EMS system. Plymouth has a robust agreement with Huron Valley Ambulance which has a headquarters and maintenance facility in Plymouth. It provides excellent response to the City at no cost and has also entered into other cost-sharing arrangements such as maintaining the city's fleet with its mechanics. Northville receives its EMS services through Community Emergency Medical Services with units that are dynamically deployed in the area but not stationed in Northville. The differences are apparent because Northville purchases an ambulance for use when CEMS is not available; Huron Valley provides one at no cost to Plymouth.

The EMS issue is critical to decision making because the majority of calls to the fire/EMS are for EMS. The Township of Plymouth is reviewing a proposal for EMS transport from Huron Valley that would strengthen the ability to regularly position ambulances in the community. The Charter Township of Northville provides its own EMS service but not to the City of Northville.

Through this report, we will strive to allow the reader to look inside the department to understand its strengths and its challenges. We sincerely hope that all parties utilize the information and recommendations contained herein in a constructive manner to make a fine public safety agency even better.

Following are our General Observations that we believe identify some of the more significant issues facing the department. Additionally, we have included a master list of recommendations for consideration; we believe these recommendations will enhance organizational effectiveness. Oftentimes, these types of recommendations require a substantial financial commitment on the part of a jurisdiction. In the case of the Plymouth Police Department and Northville Fire Department, some of the recommendations may require contract negotiations. It is important to note that in this report we will examine specific sections and units of the department; we will offer a detailed discussion of our observations and recommendations for each.

The list of recommendations is not extensive. We found the Plymouth Police Department well positioned and managed for change. Should the City of Plymouth choose to implement any or all recommendations, it must be recognized that this process will not take just weeks or even months to complete, but years. The recommendations are intended to form the basis of a long-term plan. The Plymouth Police Department is very stable; staff are hired and do not leave. While this affords the City an opportunity, it also creates a challenge for institutional memory and experience should the city embark on the public safety approach. Firefighting, as an example, is not so much what you have studied but what skills you have developed to mitigate an emergency.

GENERAL OBSERVATIONS AND RECOMMENDATIONS

Public Safety departments are a unique consolidation as evidenced that the majority of such departments exist in Michigan with few others in the other states. A challenge for public safety departments is achieving functionally cross-trained staffs. Across the United States, approximately 130 cities utilize the public safety concept in some form. At least one union has dedicated a web space to discourage public safety, postulating that the police and fire disciplines are incompatible. Make no mistake, merging the police and fire operations is difficult and, at initiation, expensive. Managing a fully functional, cross-trained public safety department takes special skill sets because the leader must deal with two distinct personality cultures that such departments incorporate: police tend to be trained as individualistic and capable of handling situations alone while fire departments tend to train and function as teams dependent upon each other. Fortunately, several community colleges near Plymouth graduate students with police and fire eligible certifications and degrees. CPSM and ICMA have taken no position on public safety but seek to provide comparison to best practices of each discipline drawn from around the world.

Most criticism of the public safety model centers on concerns that skills and competency in either the police or fire discipline are compromised. CPSM has found departments that have concentrated resources in one discipline or the other; in Plymouth there is an added dimension with on-call firefighters. CPSM was impressed with the caliber of policing taking place. In the fire discipline, the Northville department operates across two cities and the firefighters assigned seem to view themselves as two different departments. The Plymouth assigned staff culture is more management-engaged while Northville expressed less concern for concepts found in best service delivery models. In our ride-alongs and interviews with staff and surrounding agencies, the concerns on public safety were expressed. CPSM would note that these are not unique to Plymouth; CPSM has heard the same concerns expressed by traditional departments when commenting on 30-year public safety departments. The focus of the department and city should not be on addressing every one of these concerns; it should remain on providing the best possible customer service to citizens of Plymouth using the chosen model.


Plymouth will be competing in a job market that is at nearly full employment and that shows numerous unfilled police employment opportunities. CPSM is working with communities across Michigan and the United States who report numerous vacancies in the police department with no or insufficient candidates to fill those vacancies. In Plymouth the challenge would go one further step with the requirement that candidates also be trained as firefighters. Paid on call firefighters are also becoming more difficult to find because of the education requirements and time commitment required of these individuals. Plymouth has a good compliment currently assigned to its station that indicated a desire to remain; the challenge will be continued recruiting and maintaining that capability.

CPSM has undertaken extensive discussions with its team about how to best recommend initiating change within the Plymouth choices. We looked at four options available to the City of Plymouth:

1. Continue as currently deployed. The Police Department would remain under direct supervision and administration of the City Manager and City of Plymouth while fire services would continue to be provided by contract from the City of Northville.
2. Create a new, separate fire department in Plymouth to compliment the existing police department.

3. Create a Department of Public Safety that would merge the existing police department and add the fire services division.
4. Contract for fire services from another entity.

Continue as Currently Deployed



Continue with existing contract

CPSM looked at the option to continue services as currently deployed. Should the City of Plymouth decide on this course of action, the contract with Northville should be strengthened to include specific performance measures, reporting standards, metric achievement, and focus on outcomes for service rather than simply a standard service model agreement. The standards listed in the Commission on Fire Accreditation International (CFAI) as administered through the Center for Public Safety Excellence provide a good reporting methodology. That process requires the creation of a self-assessment, development of short and long term strategic plans, creation and administration of

stated standards of coverage performance, and regular review by peers.


Interviews with elected officials and administration indicated that there are problems with the existing provision of services. Plymouth has an exceptionally high expectation and culture of “best” service delivery. This “best” can be first noticed by calling the city; the menu is enthusiastic, upbeat, and dynamic. This expectation of excellence was found by CPSM throughout the organization and during interaction with city personnel and elected officials. The City of Northville, a smaller governmental unit, appears to not have as robust of an approach to the same demand for excellence at all levels; this creates conflict. The conflict was prominent during interviews with personnel assigned to the two cities. Plymouth staff understands that they are expected to deliver a robust and best service and were frustrated when that enthusiasm and ideal was not the same as when working with their Northville colleagues.

EMS will be an issue in any extension agreement. Plymouth receives excellent service from Huron Valley Ambulance at no cost to the city. Huron Valley also provides maintenance services for Plymouth equipment as well as an ambulance to the fire department for use in Plymouth. Northville uses Community Health for EMS. Huron Valley is bidding on a service proposal to Plymouth Charter Township which would minimize the footprint of Community Health's service area. Northville Charter Township Fire Department provides Fire and EMS services.

If the existing contract is to be continued, it should provide metric-based management and consideration should be given to forming an authority that would provide equal representation from both communities. If not changed, the department will continue to operate as two entities united only by name.

Extending the existing contract would not significantly increase costs paid by the City of Plymouth.

Elected officials did not view the existing arrangement favorably.



Create separate fire department

Create a Separate Fire Department


CPSM considered the option of providing a stand-alone and separate fire department in Plymouth. While this is an option because the City of Plymouth leases its equipment with regular replacement, owns its stations, has a robust paid-on-call team assigned, and has an excellent management team to support a fire department, it is not the ideal.

Creating a stand-alone department would require hiring full-time administrators for a department which responds to a limited number of calls. Because the EMS provider is located in Plymouth with an excellent service center, the fire department would be largely limited to a small

number of fire calls for service. First responder services would usually be delivered by the already-dispatched police officers so dispatching additional responders would be duplicative and high risk.

In addition to hiring a separate chief and full-time staff for each shift (requiring a minimum of five full-time employees along with associated benefits), the best operation model would also require a full-time fire marshal to create a robust fire prevention program to eliminate or significantly reduce calls for service. The cost of a separate department would be in the range of an additional \$420,000 per year.

A challenge that is to be acknowledged will be the continued ability to attract quality paid on call staff to the City. Throughout the United States, this is becoming more and more challenging because of the demands for training, education, and a life-work balance. Most of the calls for service in Plymouth come during daytime hours which is usually when paid-on-call are least available. How to staff for calls for service to meet demand may require additional full-time fire fighters to cover these hours, like a model used in the nearby city of Novi. These would be added costs and, coupled with legacy costs such as retirement, benefits, etc., would be more expensive than the option of renegotiating the existing contract with Northville.



Contract with another unit

Contract with Others

CPSM considered the option of contracting with another governmental unit for fire protection. Plymouth Charter Township has its own Fire Department that used to provide service to Plymouth prior to Plymouth establishing the relationship with Northville. Northville Charter Township has its own fire department that also provides EMS services which would be an added expense for Plymouth. Other governmental units would require longer response times for second and additional units, thus being impractical.

CPSM did not feel this was a viable option.



Create a Public Safety Department

The fourth option that CPSM looked at was the creation of a public safety department with a police and fire division. CPSM envisions that there would be a director of public safety with a deputy director charged with fire day-to-day administration of fire but who could also function as director during absences caused by vacation, sick, leave, and training.

Ideally, the full-time police officers would be cross-trained in fire and medical first responder skills. Because of the immediate response of Huron Valley Ambulance, adding paramedic services should be limited; medical first responders or EMT's can assess patients, begin many life-saving procedures, and package patients for transport. Huron Valley usually arrives at the same time or just after Plymouth Police at this time; their units are paramedic staffed at no cost to the community; studies show that paramedic skills are negatively impacted when there are too many paramedics and not enough patients. The location of medical facilities also reduces the likelihood paramedic skills would be maximized.

There is capacity in the police department to handle this dual-role. The forensic analyses for both police workload and fire workload shows neither entity is approaching the saturation lines for deployment (usually more than 60% of available time spent on calls for service). The existing fire paid-on-call staff would be assumed into the new organization and it should be communicated that they are critical to the continued operations. POC expressed concerns they would be "eliminated" in a public safety model; nothing is further from the truth. The existing full-time employees would be first-due in any call for service with the paid on-call responding to create the full complement needed to handle various emergencies such as fire, major EMS calls, hazmat, etc. Ideally, they would see opportunity to further engage with the public safety department at special events and free full-time, paid public safety officers to roles more suited for their training.

Challenges to creating a department of public safety:

1. Communicating and building a team of police, paid-on-call, and staff.
2. Building acceptance through performance with nearby communities and departments. Automatic and mutual aid agreements should be developed with all surrounding agencies.
3. Training and contractual agreements with the existing police officers.
4. Development of policy, procedure, community risk assessment, and development of a standard of response coverage that integrates with emergency management situations.
5. Continued recruitment of full-time and paid-on call staff.
6. Future station configurations.

Costs

1. Additional administrative position (deputy director)
2. Full-time fire marshal to oversee inspections, investigations, fire prevention. City expressed a willingness to add this position under the existing agreement with Northville.

3. Initial training cost for police officers. This cost can vary considerably, depending on whether the training is conducted on overtime or during regular shift hours.

Plymouth Police Recommendations.

- Plymouth is one of the rare communities CPSM has recently worked with which doesn't have a recruitment and retention problem. People who are hired typically stay. This is a credit to the overall leadership within the department and its culture. Employees who were interviewed for this study commented on the family type culture. Should the City decide to pursue a public safety model retention of employees will be critical. The City will invest significant resources in their training. Losing fully trained employees will financially impact the City. During interviews many employees commented on the excellent pay and benefits package. The City should continue to its retention efforts.
- The Chief of Police is deploying resources using crime and traffic crash data and this practice should continue. While Plymouth has an extremely low crime and traffic crash rate, the residents deserve the highest level of crime prevention, crime detection and traffic safety. The Chief, his staff and the officers should be commended for their crime fighting strategies. This practice should continue.
- The data associated with individual and general police officer activities is comprehensive. Most police departments do a poor job of tracking and documenting individual officer's daily activities. Plymouth is the exception. Tracking the performance of individual employees is an important component in the overall management and leadership of any organization. While some employees may find the inputting of this data as annoying or "busy work", this data provides an accurate picture of who is doing what. This greatly assists the Chief, City Administration, and others in assessing individual and overall employee performance. The police department should be commended for this effort.
- Implement more frequent property room audits.
- Ensure complaints or issues, involving Plymouth Township dispatching services are followed up on and the resolution is reported back to the Plymouth Police Department.

Education and Training

- The department should continue to explore opportunities for additional training of its personnel. All employees receive mandated MCOLES training and, many officers, have received additional advanced police training. This practice should continue. It is also important to provide additional training opportunities for personnel to develop additional knowledge, skills and abilities. One of the the few complaints from employees were the limited opportunities.
- Implement a policy for daily training

Detective Bureau

- Participate in area detective meetings to share crime trend information, suspect information and intelligence
- Develop a system which tracks the status of cases submitted to the Wayne County Prosecutors Office.
- If a Department of Public Safety is created, a fire marshal position should be added; incorporating it in the Detective Bureau would add depth when investigating fire-related calls for service.

Plymouth Fire Recommendations

The following recommendations have been categorized into five separate groupings:

Organizational Structure and System Design

- Plymouth should assign a Fire Captain (lieutenant) or Acting Captain to serve as the officer in charge (OIC) of that facility while on-duty and is responsible for the supervision of all emergency response activities and administrative-personnel oversight.
- Plymouth should establish a departmental training steering committee that provides input regarding training topics, employee development, delivery techniques and overall program effectiveness. Ideally, Plymouth should develop a yearly competency testing for all personnel and base training on needs that are identified in the testing processes.

Dispatching Procedures and Radio Communications

- Plymouth should incorporate a prioritized dispatching process for fire and EMS responses which enables responding units to alter their mode of response on the basis of the incident severity.
- Plymouth should inject into the dispatching process the ability to eliminate units from responding on those non-emergent or minor EMS calls that could be handled by the ambulance provider. All units and staff should be tracked and recorded in reporting logs.
- Plymouth should install fire station alarm alerting systems at all fire stations that can be heard throughout the station living areas, the bay area and adjacent outside areas whenever an alarm is sounded. Fire stations should also be able to receive pre-alerts when emergency medical dispatching is implemented.
- When units are dispatched, the number of responders and times should be captured in the RMS system to enable workload audits.
- RMS should also identify mutual aid, automatic aid, and to which governmental area is aid being provided.
- Run cards or response protocols should be established for all properties and hazards using Standards of Response and All-Hazard Risk Management practices.

Operations and Deployment

- Insure that there are at least 3 on-duty patrol officers who are properly trained and available for fire response. During shift briefings the three should determine what functions they will provide on any fire call requiring personnel beyond that assigned to the fire operations. In other words, will they tag and dress the hydrants, perform internal attack, external, rapid intervention, etc.
- Insure that all Commanders and Sergeants are certified to the level of Firefighter 1 & 2, and are fully trained in structural firefighting tactical command, and incident management.
- Plymouth should evaluate the opportunity to engage in box alarm systems such as the MABAS (Mutual Aid Box Alarm System) used in large metro areas like Chicago and Phoenix. The MABAS type system would extend to its current working relationship with surrounding departments.
- All policies, procedures, rules and regulations should be incorporated in a new public safety department model.

Support Functions

- Plymouth should formalize its policy regarding pre-incident fire planning and require that all critical occupancies and target hazards have a completed pre-incident fire plan in accordance with NFPA-1610. These plans should be readily accessible on the mobile data terminals and are updated on a regular basis. Part of the pre-plan should include identification of resources needed to handle incidents at all properties in the community. Dispatch should follow the protocols and identified pre-planning when alerting units (first alarm, first due, and subsequent alarms).
- Plymouth should insure that the fire investigations unit is properly trained and equipped to conduct a fire investigation to determine the cause and origin of any fire and to determine fire loss estimates.
- The Plymouth Fire investigation Unit should prepare an annual report regarding all structure, vehicle and outside fires to determine the frequencies of fires in the community and the annual fire loss. The investigative unit should also review all fires in the community to identify any trends or patterns that may become the impetus for an orchestrated code enforcement or public education effort.
- All Plymouth fire stations should be equipped with bio-hazard decontamination and disposal areas along with areas for personnel and equipment clean-up.

As noted previously, key specific recommendations follow and are discussed in detail throughout the report. These recommendations are offered to enhance the operation of either the existing operations or a Plymouth Department of Public Safety. The recommendations listed here are meant to ensure that fire and law enforcement resources are optimally deployed, operations are streamlined for efficiency, and services provided are cost-effective, all while maintaining a high level of service to the citizens of the City.

CPSM staff would like to thank Chiefs Al Cox of the Plymouth Police Department and Stephen Ott of the Northville Fire Department and the entire staff of the Departments for their gracious cooperation and assistance in completing this project.

SECTION 2. METHODOLOGY

Data Analysis

CPSM used numerous sources of data to support our conclusions and recommendations for the Plymouth Public Safety decision process. Information was obtained from the FBI Uniform Crime Reporting (UCR) Program, Part I offenses, along with numerous sources of internal information. UCR Part I crimes are defined as murder, rape, robbery, aggravated assault, burglary, larceny-theft, and larceny of a motor vehicle. Internal sources included data from the computer-aided dispatch (CAD) system for information on calls for service (CFS).

Interviews

This study relied extensively on intensive interviews with personnel. On-site and in-person interviews were conducted with all division commanders regarding their operations.

Focus Groups

A focus group is an unstructured group interview in which the moderator actively encourages discussion among participants. Focus groups generally consist of eight to ten participants and are used to explore issues that are difficult to define. Group discussion permits greater exploration of topics. For the purposes of this study, focus groups were held with a representative cross-section of employees within the department.

Community Focus

In addition to departmental focus groups, CPSM interviewed persons in the community with which we interacted. Here, we solicited input from community members concerning their feelings toward the department, specific to its strengths, weaknesses, opportunities present for improvement, and threats to operational effectiveness.

Elected Officials Group

Additionally, CPSM interviewed elected officials from the city. Here, we solicited input from community members concerning their feelings toward the department, specific to its strengths, weaknesses, opportunities present for improvement, and threats to operational effectiveness.

Document Review

CPSM consultants were furnished with numerous reports and summary documents by the Department. Information on strategic plans, personnel staffing and deployment, monthly and annual reports, operations manuals, intelligence bulletins, evaluations, training records, and performance statistics were reviewed by project team staff. Follow-up phone calls were used to clarify information as needed.

Operational/Administrative Observations

Over the course of the evaluation period, numerous observations were conducted. These included observations of general patrol, investigations, support services such as records, communications, property and evidence, firefighting, and administrative functions. CPSM representatives engaged all facets of department operations from a "participant observation" perspective.

Staffing Analysis

In virtually all CPSM studies, we are asked to identify appropriate staffing levels. That is the case in this study as well. In the following subsections, we will extensively discuss workload, operational and safety conditions, and other factors to be considered in establishing appropriate staffing levels. Staffing recommendations are based upon our comprehensive evaluation of all relevant factors.

FIRE SERVICES DATA ANALYSIS REPORT

PLYMOUTH, MICHIGAN

January 7, 2019



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INTRODUCTION

This data analysis was prepared as a key component of the study of the fire and EMS resources provided to Plymouth, Michigan, by Northville Fire Department (NFD), which was conducted by the Center for Public Safety Management, LLC (CPSM). This analysis examines all calls for service between July 1, 2017 and June 30, 2018, as recorded in the computer-aided dispatch (CAD) system associated with Oakland County's Courts and Law Enforcement Information System (CLEMIS) along with information provided by the NFD's National Fire Incident Reporting System (NFIRS).

This analysis is made up of four parts. The first part focuses on call types and dispatches. The second part explores time spent and workload of individual units. The third part presents an analysis of the busiest hours in the year studied. The fourth part provides a response time analysis of NFD units.

During the year covered by this study, fire and EMS first response were provided to the city of Plymouth by the Northville Fire Department. The department operated out of three stations, utilizing one aerial platform, two BLS ambulances, eight light duty command vehicles, two engines, and one pumper engine. This study focused on calls that either occurred in Plymouth or involved units from the two stations located within Plymouth.

During the study period, Northville Fire Department EMS and fire services responded to 796 Plymouth-related calls, of which 74.6 percent were EMS calls. The total combined workload (deployed time) for all NFD units was 507.8 hours. The average dispatch time for the first arriving unit was 2.6 minutes and the average response time of the first arriving unit was 8.7 minutes. The 90th percentile dispatch time was 6.7 minutes and the 90th percentile response time was 14.7 minutes.

METHODOLOGY

In this report, CPSM analyzes calls and runs. A call is an emergency service request or incident. A run is a dispatch of a unit (i.e., a unit responding to a call). Thus, a call may include multiple runs.

We received CAD data, NFIRS data for the Northville Fire Department. We first matched the NFIRS and CAD data based on incident numbers provided, then matched CAD data and ambulance data provided by Huron Valley ambulance based on the time of the incident and incident location. Then, we classified the calls in a series of steps. We first used the NFIRS incident type to identify canceled calls, motor vehicle accident (MVA), and fire category call types. EMS calls were then assigned detailed categories based on their EMS Clawson codes as provided by the ambulance data.

Finally, units with no corresponding call, and units with no enroute or arrival time, were removed. Then, calls with no responding NFD units were removed. In addition, a total of four incidents to which the command or administrative units were the sole responders are not included in the analysis sections of the report. However, the workload of administrative units is documented in Attachment II.

In this report, canceled calls are included in all analyses other than the response time analyses.

NOTES TO FIRE REPORT

Following review, Chief Stephen Ott of the Northville Fire Department noted there appears to be an assumption that the dispatch center assigns units to respond on a call. While this may be the case in larger operations, it is not the case for Northville. Rather, the dispatch center alerts the appropriate station and provides information on the nature and location of the call. Which units actually respond is then determined by the Department, based on General Orders, the needs of the call, the determination of the officer in charge, and the units and personnel that are available.

There is a reference to the Department operating three stations, but the units then identified only reflect the units housed at the two stations in Plymouth. This could be confusing to readers and should be noted; the purpose of this study was to determine the workload in Plymouth and not the entire fire department. In addition, there is a reference to operation of "eight light duty command vehicles." This references the fact that our officers and inspectors, each of whom is issued a radio and a personal call sign, will sometimes speak on the radio and get referenced in the CAD data. The "vehicles" involved would be these individuals' personal vehicles. So, for example, if Inspector 1726 drove by a reported car fire on the way to the station, he might get on the radio and advise dispatch that the vehicle is fully involved. He would then continue to the station, get his equipment and respond on one of the trucks. In addition, just because someone who is assigned a personal call sign is not reflected as having a run, it does not mean that he was not there. It only means that there was no reason for that person to contact dispatch using his personal call sign.

The report references 19 structure fires during the time period covered by the study. Rarely are there that many structure fires in Plymouth or Northville so some may be mutual aid that was not identified as such. This is important to note for several reasons. First, response times to mutual aid calls will ordinarily be longer, since units are leaving the jurisdiction. Second, a mutual aid response is typically limited to one vehicle. Third, when preparing a NFIRS report for a mutual aid call, NFD will not typically include information such as loss values, leaving this to the report of the primary jurisdiction. If someone interprets all of the information provided in the report as involving structure fires exclusively in the City of Plymouth, they could mistakenly conclude that it takes NFD longer to get there, that it responds with fewer assets, and that NFD did not collect data such as loss data.

With respect to structure fires in the City of Plymouth, it is also important to note that there are assets responding to that call that are not stationed at Plymouth stations. An engine from station 1 automatically responds, as do units from the Plymouth Township Fire Department. While NFD tries to account for station 1 assets on the report, the numbers will not reflect units responding from Plymouth Township or other mutual aid departments. In addition, if needed, NFD will send additional units from station 1 to "fill in" at station 2, and handle any additional calls. Of course, the same works in reverse if the structure fire is in the City of Northville. Aerial 1722 automatically responds on such calls, and this would be reflected in the NFIRS report prepared at station 1 following the call.

The information on call duration can also be somewhat misleading. This data measures the amount of time a unit is on a run, until the time that it clears. There is, however, a lot of additional work to be done before NFD considers the call closed out. Vehicles have to be cleaned, restocked and an apparatus check sheet completed after the vehicle returns to the station. NFD also writes reports for each call prior to leaving the station after the call. Because stations are not typically staffed, NFD considers the time on a call to consist of all the activity undertaken during the time that people are called into the station. While all of this time is not reflected in the NFIRS reports, and while there is potentially some benefit to determining the

amount of time a particular unit is devoted to the scene itself, because of the nature of the NFD operation, it tends to view the total time devoted to the call, including clean-up and report writing, as more important.

In any public safety department, these issues should be addressed and regular reporting on first, second, and subsequent units compiled, including personnel staffing those units.

AGGREGATE CALL TOTALS AND RUNS

During the year studied, Plymouth fire and EMS resources responded to 796 calls. Of these, 19 were structure fire calls and 7 were outside fire calls within the City of Plymouth's jurisdiction.

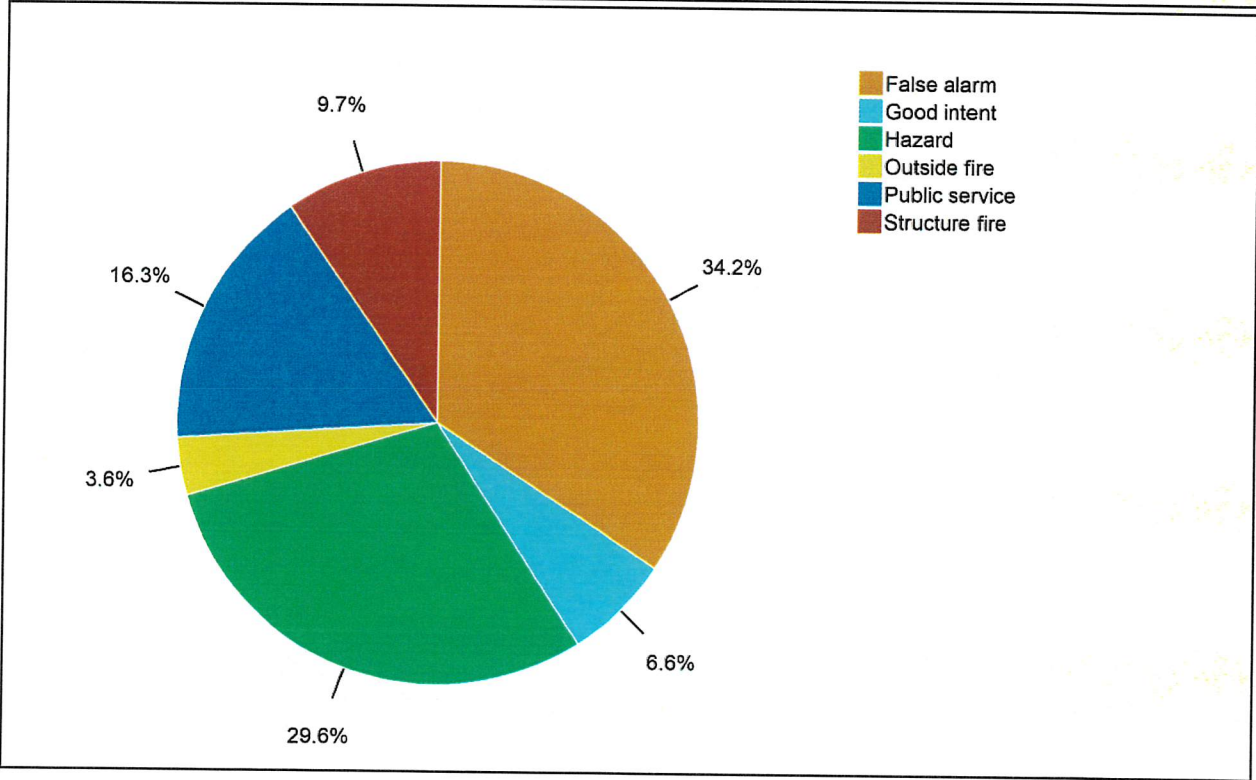
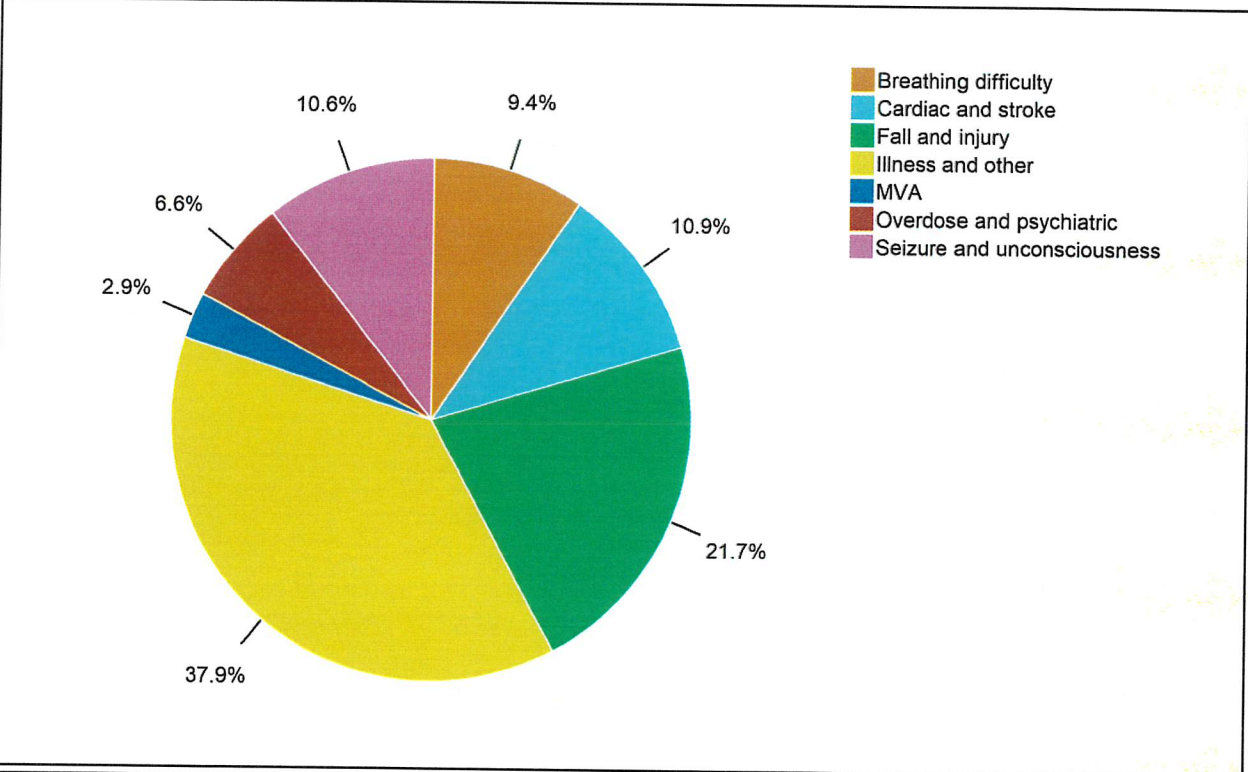
CALLS BY TYPE

Table 1 and Figure 1 show the number of calls by call type, average calls per day, and the percentage of calls that fall into each call type category for the 12-month period studied.

TABLE 1: Call Types

| Call Type | Number of Calls | Calls per Day | Call Percentage |
|-----------------------------|-----------------|---------------|-----------------|
| Breathing difficulty | 56 | 0.2 | 7.0 |
| Cardiac and stroke | 65 | 0.2 | 8.2 |
| Fall and injury | 129 | 0.4 | 16.2 |
| Illness and other | 225 | 0.6 | 28.3 |
| MVA | 17 | 0.0 | 2.1 |
| Overdose and psychiatric | 39 | 0.1 | 4.9 |
| Seizure and unconsciousness | 63 | 0.2 | 7.9 |
| EMS Total | 594 | 1.6 | 74.6 |
| False alarm | 67 | 0.2 | 8.4 |
| Good intent | 13 | 0.0 | 1.6 |
| Hazard | 58 | 0.2 | 7.3 |
| Outside fire | 7 | 0.0 | 0.9 |
| Public service | 32 | 0.1 | 4.0 |
| Structure fire | 19 | 0.1 | 2.4 |
| Fire Total | 196 | 0.5 | 24.6 |
| Canceled | 6 | 0.0 | 0.8 |
| Total | 796 | 2.2 | 100.0 |

FIGURE 1: EMS and Fire Calls by Type



Observations:

Overall

The department received an average of 2.2 calls, per day.

EMS calls for the year totaled 594 (75 percent of all calls), an average of 1.6 per day.

Fire calls for the year totaled 196 (25 percent of all calls), an average of 0.5 per day.

There were 44 days with no calls for service.

EMS

Illness and other calls were the largest category of EMS calls at 38 percent of EMS calls, an average of 0.6 calls per day.

Cardiac and stroke calls made up 11 percent of EMS calls, an average of 0.2 calls per day.

Motor vehicle accidents made up 3 percent of EMS calls, an average of 0.0 calls per day.

Fire

False alarm calls were the largest category of fire calls at 34 percent of fire calls, an average of 0.2 calls per day.

Structure and outside fire calls combined made up 13 percent of fire calls, an average of 0.1 calls per day, or one call every 14 days.

CALLS BY TYPE AND DURATION

Table 2 shows the duration of calls by type using four duration categories: less than 30 minutes, 30 minutes to one hour, one to two hours, and more than an hour.

TABLE 2: Calls by Type and Duration

| Call Type | Less than 30 Minutes | 30 Minutes to One Hour | One to Two Hours | More Than Two Hours | Total |
|-----------------------------|----------------------|------------------------|------------------|---------------------|------------|
| Breathing difficulty | 47 | 9 | 0 | 0 | 56 |
| Cardiac and stroke | 60 | 5 | 0 | 0 | 65 |
| Fall and injury | 112 | 16 | 0 | 1 | 129 |
| Illness and other | 178 | 42 | 4 | 1 | 225 |
| MVA | 14 | 3 | 0 | 0 | 17 |
| Overdose and psychiatric | 29 | 9 | 1 | 0 | 39 |
| Seizure and unconsciousness | 54 | 9 | 0 | 0 | 63 |
| EMS Total | 494 | 93 | 5 | 2 | 594 |
| False alarm | 45 | 19 | 3 | 0 | 67 |
| Good intent | 9 | 3 | 1 | 0 | 13 |
| Hazard | 31 | 16 | 6 | 5 | 58 |
| Outside fire | 4 | 1 | 1 | 1 | 7 |
| Public service | 26 | 2 | 3 | 1 | 32 |
| Structure fire | 9 | 1 | 5 | 4 | 19 |
| Fire Total | 124 | 42 | 19 | 11 | 196 |
| Canceled | 5 | 0 | 1 | 0 | 6 |
| Total | 623 | 135 | 25 | 13 | 796 |

Observations:

A total of 587 EMS calls (99 percent) lasted less than one hour, 5 EMS calls (1 percent) lasted one to two hours, and 2 EMS calls (less than 1 percent) lasted two or more hours.

A total of 166 fire calls (85 percent) lasted less than one hour, 19 fire calls (10 percent) lasted one to two hours, and 11 fire calls (6 percent) lasted two or more hours.

AVERAGE CALLS PER DAY AND PER HOUR

Figure 2 shows the monthly variation in the average daily number of calls handled by the NFD during the year studied. Similarly, Figure 3 illustrates the average number of calls received each hour of the day over the course of the year.

FIGURE 2: Average Calls per Day, by Month

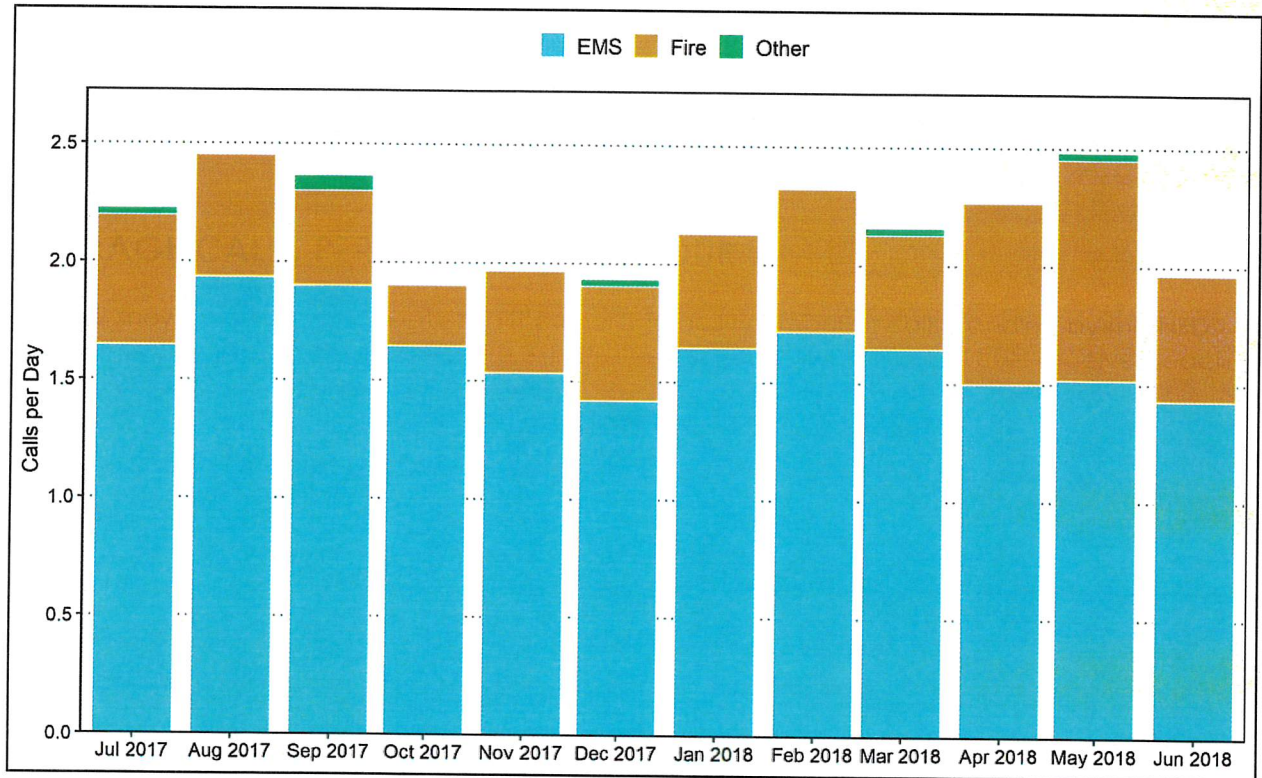
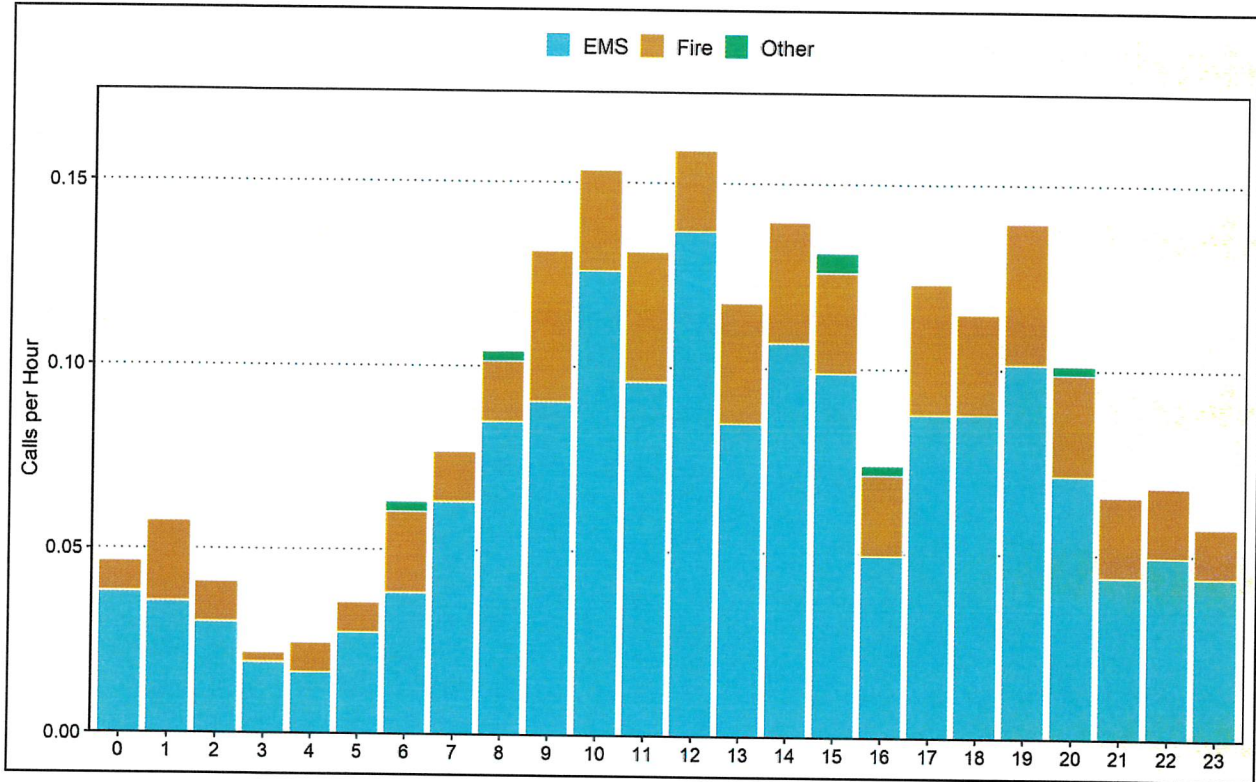


FIGURE 3: Calls by Hour of Day



Observations:

Average Calls per Month

Average EMS calls per day ranged from 1.4 in December 2017 to 1.9 in August 2017.

Average fire calls per day ranged from 0.3 in October 2017 to 0.9 in May 2018.

There were never more than 2 other calls in a single month.

Average calls per day overall ranged from 1.9 in October 2017 to 2.5 in May 2018.

Average Calls per Hour

Average EMS calls per hour ranged from 0.02 between 4:00 a.m. and 5:00 a.m. to 0.14 between noon and 1:00 p.m.

Average fire calls per hour ranged from 0.003 between 3:00 a.m. and 4:00 a.m. to 0.04 between 9:00 a.m. and 10:00 a.m.

Average calls per hour overall ranged from less than 0.02 between 3:00 a.m. and 4:00 a.m. to 0.16 between noon and 1:00 p.m.

UNITS DISPATCHED TO CALLS

Table 3 and Figures 4 and 5 detail the number of NFD calls with one, two, or three or more units dispatched overall and broken down by call type.

TABLE 3: Calls by Call Type and Number of Units Dispatched

| Call Type | Number of Units | | | Total Calls |
|-----------------------------|-----------------|-------------|---------------|--------------|
| | One | Two | Three or More | |
| Breathing difficulty | 52 | 4 | 0 | 56 |
| Cardiac and stroke | 63 | 2 | 0 | 65 |
| Fall and injury | 112 | 17 | 0 | 129 |
| Illness and other | 200 | 24 | 1 | 225 |
| MVA | 7 | 9 | 1 | 17 |
| Overdose and psychiatric | 39 | 0 | 0 | 39 |
| Seizure and unconsciousness | 57 | 6 | 0 | 63 |
| EMS Total | 530 | 62 | 2 | 594 |
| False alarm | 27 | 21 | 19 | 67 |
| Good intent | 9 | 2 | 2 | 13 |
| Hazard | 34 | 18 | 6 | 58 |
| Outside fire | 1 | 1 | 5 | 7 |
| Public service | 23 | 8 | 1 | 32 |
| Structure fire | 9 | 3 | 7 | 19 |
| Fire Total | 103 | 53 | 40 | 196 |
| Canceled | 6 | 0 | 0 | 6 |
| Total | 639 | 115 | 42 | 796 |
| Percentage | 80.3 | 14.4 | 5.3 | 100.0 |

FIGURE 4: Calls by Number of Units Dispatched – EMS

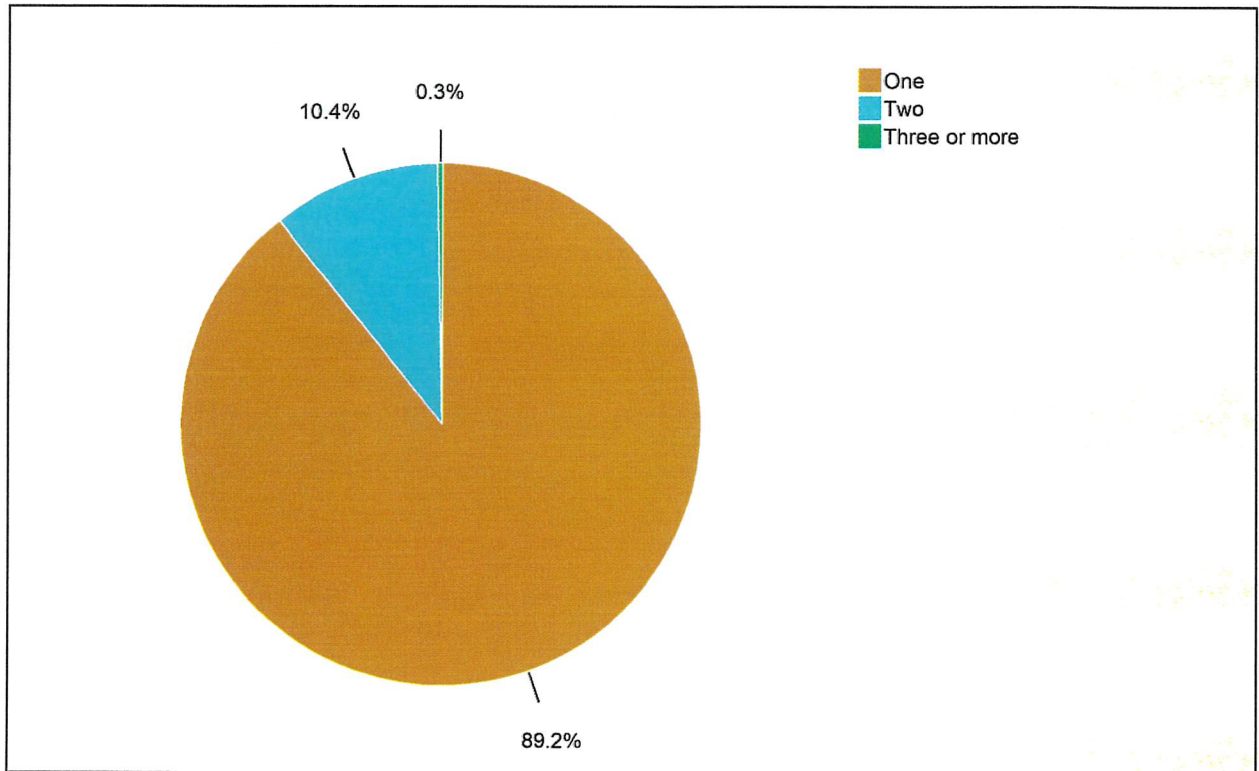
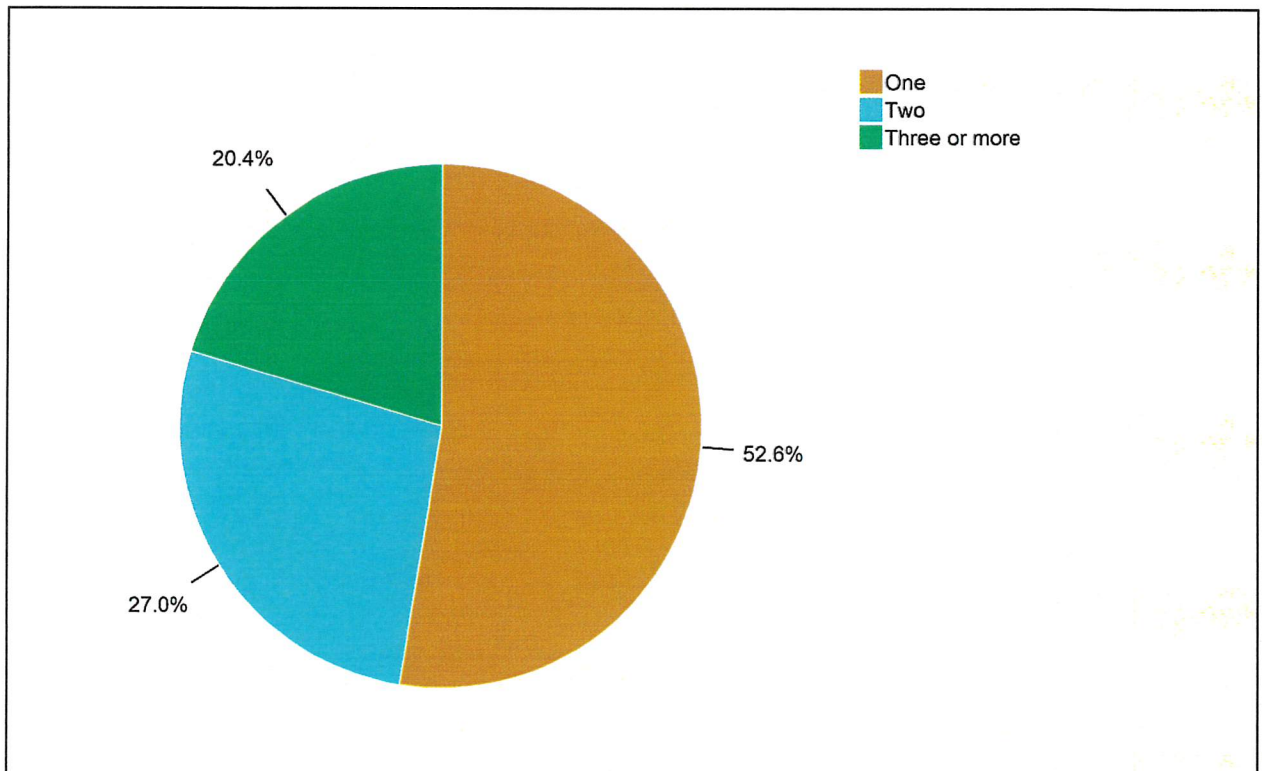


FIGURE 5: Calls by Number of Units Dispatched – Fire



Observations:

Overall

On average, 1.3 units were dispatched to all calls.

For 80 percent of calls only one unit was dispatched.

Overall, three or more units were dispatched to 5 percent of calls.

EMS

For EMS calls, one unit was dispatched 89 percent of the time, two units were dispatched 10 percent of the time, and three or more units were dispatched less than 1 percent of the time.

On average, 1.1 units were dispatched per EMS call.

Fire

For fire calls, one unit was dispatched 53 percent of the time, two units were dispatched 27 percent of the time, and three or more units were dispatched 20 percent of the time.

On average, 1.8 units were dispatched per fire call.

For outside fire calls, three or more units were dispatched 71 percent of the time.

For structure fire calls, three or more units were dispatched 37 percent of the time.

WORKLOAD: RUNS AND TOTAL TIME SPENT

The workload of each unit is measured in two ways: runs and deployed time. The deployed time of a run is measured from the time a unit is dispatched through the time the unit is cleared. Because multiple units respond to some calls, there are more runs than calls and the average deployed time per run varies from the total duration of calls.

RUNS AND DEPLOYED TIME – ALL UNITS

Deployed time, also referred to as deployed hours, is the total deployment time of all units deployed on all runs. Table 4 shows the total deployed time, both overall and broken down by type of run, for NFD units during the year studied.

TABLE 4: Annual Runs and Deployed Time by Run Type

| Call Type | Avg. Deployed Min. per Run | Total Annual Hours | Percent of Total Hours | Avg. Deployed Min. per Day | Total Annual Runs | Avg. Runs per Day |
|-----------------------------|----------------------------|--------------------|------------------------|----------------------------|-------------------|-------------------|
| Breathing difficulty | 21.9 | 21.9 | 4.3 | 3.6 | 60 | 0.2 |
| Cardiac and stroke | 20.2 | 22.6 | 4.4 | 3.7 | 67 | 0.2 |
| Fall and injury | 20.1 | 48.8 | 9.6 | 8.0 | 146 | 0.4 |
| Illness and other | 22.9 | 95.6 | 18.8 | 15.7 | 251 | 0.7 |
| MVA | 20.3 | 9.8 | 1.9 | 1.6 | 29 | 0.1 |
| Overdose and psychiatric | 24.4 | 15.9 | 3.1 | 2.6 | 39 | 0.1 |
| Seizure and unconsciousness | 20.5 | 23.5 | 4.6 | 3.9 | 69 | 0.2 |
| EMS Total | 21.6 | 238.2 | 46.9 | 39.2 | 661 | 1.8 |
| False alarm | 25.2 | 58.3 | 11.5 | 9.6 | 139 | 0.4 |
| Good intent | 25.7 | 9.4 | 1.9 | 1.6 | 22 | 0.1 |
| Hazard | 53.4 | 80.1 | 15.8 | 13.2 | 90 | 0.2 |
| Outside fire | 119.8 | 45.9 | 9.0 | 7.5 | 23 | 0.1 |
| Public service | 26.1 | 19.1 | 3.8 | 3.1 | 44 | 0.1 |
| Structure fire | 80.7 | 55.2 | 10.9 | 9.1 | 41 | 0.1 |
| Fire Total | 44.8 | 268.1 | 52.8 | 44.1 | 359 | 1.0 |
| Canceled | 15.2 | 1.5 | 0.3 | 0.3 | 6 | 0.0 |
| Total | 29.7 | 507.8 | 100.0 | 83.5 | 1,026 | 2.8 |

Observations:

Overall

Total deployed time for the year was 507.8 hours.

The daily average was 83.5 minutes for all units combined.

There were 1,026 runs, including 6 runs dispatched for canceled calls. The daily average was 2.8 runs.

EMS

EMS runs accounted for 47 percent of the total workload.

The average deployed time for EMS runs was 21.6 minutes.

The deployed time for all EMS runs averaged 39.2 minutes per day.

Fire

Fire runs accounted for 53 percent of the total workload.

The average deployed time for fire runs was 44.8 minutes. The deployed time for all fire runs averaged 44.1 minutes per day.

There were 64 runs for structure and outside fire calls combined, with a total workload of 101.1 hours. This accounted for 20 percent of the total workload.

The average deployed time for outside fire runs was 119.8 minutes per run, and the average deployed time for structure fire runs was 80.7 minutes per run.

FIGURE 6: Average Deployed Minutes by Hour of Day

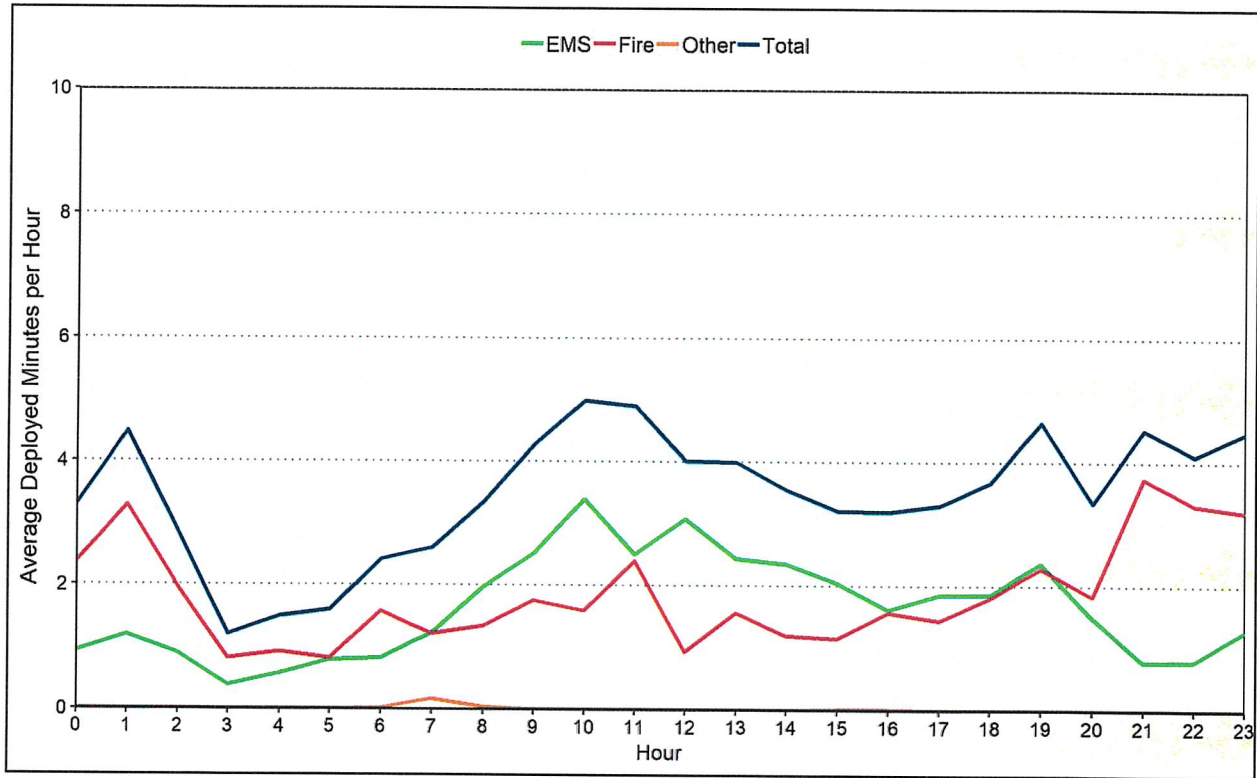


TABLE 5: Average Deployed Minutes by Hour of Day

| Hour | EMS | Fire | Other | Total |
|-------------------|-------------|-------------|------------|-------------|
| 0 | 0.9 | 2.4 | 0.0 | 3.3 |
| 1 | 1.2 | 3.3 | 0.0 | 4.5 |
| 2 | 0.9 | 2.0 | 0.0 | 2.8 |
| 3 | 0.4 | 0.8 | 0.0 | 1.2 |
| 4 | 0.6 | 0.9 | 0.0 | 1.5 |
| 5 | 0.8 | 0.8 | 0.0 | 1.6 |
| 6 | 0.8 | 1.6 | 0.0 | 2.4 |
| 7 | 1.2 | 1.2 | 0.2 | 2.6 |
| 8 | 2.0 | 1.3 | 0.0 | 3.3 |
| 9 | 2.5 | 1.8 | 0.0 | 4.3 |
| 10 | 3.4 | 1.6 | 0.0 | 5.0 |
| 11 | 2.5 | 2.4 | 0.0 | 4.9 |
| 12 | 3.1 | 0.9 | 0.0 | 4.0 |
| 13 | 2.4 | 1.6 | 0.0 | 4.0 |
| 14 | 2.4 | 1.2 | 0.0 | 3.6 |
| 15 | 2.0 | 1.2 | 0.0 | 3.2 |
| 16 | 1.6 | 1.6 | 0.0 | 3.2 |
| 17 | 1.9 | 1.4 | 0.0 | 3.3 |
| 18 | 1.9 | 1.8 | 0.0 | 3.7 |
| 19 | 2.4 | 2.3 | 0.0 | 4.6 |
| 20 | 1.5 | 1.8 | 0.0 | 3.3 |
| 21 | 0.8 | 3.7 | 0.0 | 4.5 |
| 22 | 0.8 | 3.3 | 0.0 | 4.1 |
| 23 | 1.3 | 3.2 | 0.0 | 4.5 |
| Daily Avg. | 39.2 | 44.0 | 0.2 | 83.5 |

Observations:

Hourly deployed time varied between 1 and 5 minutes throughout the day.

Average deployed time peaked between 10:00 a.m. and 11:00 a.m., averaging 5.0 minutes.

Average deployed time was lowest between 3:00 a.m. and 4:00 a.m., averaging 1.2 minutes.

WORKLOAD BY UNIT

Table 6 provides a summary of each unit's workload overall. Tables 7 and 8 provide a more detailed view of workload, showing each unit's runs broken out by run type (Table 7) and the resulting daily average deployed time by run type (Table 8).

TABLE 6: Call Workload by Unit

| Station | Unit Id | Unit Type | Avg. Deployed Min. per Run | Total Annual Hours | Avg. Deployed Min. per Day | Total Annual Runs | Avg. Runs per Day |
|--------------|--------------|----------------------|----------------------------|--------------------|----------------------------|-------------------|-------------------|
| 1 | P17L3 | Light duty command | 4.0 | 0.1 | 0.0 | 1 | 0.0 |
| | Total | | 4.0 | 0.1 | 0.0 | 1 | 0.0 |
| 2 | P1700 | Light duty command | 75.7 | 11.4 | 1.9 | 9 | 0.0 |
| | P1723 | Bis ambulance | 33.8 | 16.9 | 2.8 | 30 | 0.1 |
| | P1726 | Light duty command | 13.2 | 3.5 | 0.6 | 16 | 0.0 |
| | P1741 | Engine (mini-pumper) | 40.2 | 99.1 | 16.3 | 148 | 0.4 |
| | P1743 | Bis ambulance | 23.2 | 234.1 | 38.5 | 606 | 1.7 |
| | P1746 | Light duty command | 11.2 | 1.7 | 0.3 | 9 | 0.0 |
| | P1761 | Engine | 42.6 | 56.8 | 9.3 | 80 | 0.2 |
| | P17C2 | Light duty command | 20.2 | 1.0 | 0.2 | 3 | 0.0 |
| | P17C3 | Light duty command | 20.0 | 8.0 | 1.3 | 24 | 0.1 |
| | P17L1 | Light duty command | 2.7 | 0.0 | 0.0 | 1 | 0.0 |
| 3 | P17L5 | Light duty command | 13.4 | 2.5 | 0.4 | 11 | 0.0 |
| | Total | | 27.9 | 435.0 | 71.5 | 937 | 2.6 |
| | P1721 | Engine | 56.0 | 27.1 | 4.4 | 29 | 0.1 |
| | P1722 | Aerial platform | 46.5 | 45.7 | 7.5 | 59 | 0.2 |
| | Total | | 49.6 | 72.8 | 12.0 | 88 | 0.2 |
| Total | | 29.7 | 507.8 | 83.5 | 1,026 | 2.8 | |

TABLE 7: Total Annual Runs by Run Type and Unit

| Station | Unit Id | Unit Type | EMS | False Alarm | Good Intent | Hazard | Outside Fire | Public Service | Structure Fire | Canceled | Total |
|--------------|--------------|----------------------|------------|-------------|-------------|-----------|--------------|----------------|----------------|--------------|------------|
| 1 | P17L3 | Light duty command | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | Total | | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 2 | P1700 | Light duty command | 2 | 2 | 1 | 1 | 1 | 0 | 2 | 0 | 9 |
| | P1723 | Bls ambulance | 22 | 2 | 0 | 1 | 1 | 4 | 0 | 0 | 30 |
| | P1726 | Light duty command | 3 | 7 | 0 | 2 | 1 | 2 | 1 | 0 | 16 |
| | P1741 | Engine (mini-pumper) | 33 | 38 | 6 | 46 | 5 | 11 | 7 | 2 | 148 |
| | P1743 | Bls ambulance | 565 | 12 | 2 | 11 | 3 | 8 | 5 | 0 | 606 |
| | P1746 | Light duty command | 3 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 9 |
| | P1761 | Engine | 4 | 37 | 6 | 12 | 4 | 7 | 10 | 0 | 80 |
| | P17C2 | Light duty command | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 3 |
| | P17C3 | Light duty command | 9 | 4 | 1 | 6 | 0 | 4 | 0 | 0 | 24 |
| | P17L1 | Light duty command | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3 | P17L5 | Light duty command | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| | Total | | 653 | 108 | 16 | 79 | 16 | 38 | 25 | 2 | 937 |
| 3 | P1721 | Engine | 4 | 8 | 2 | 6 | 3 | 4 | 2 | 0 | 29 |
| | P1722 | Aerial platform | 4 | 23 | 4 | 5 | 3 | 2 | 14 | 4 | 59 |
| | Total | | 8 | 31 | 6 | 11 | 6 | 6 | 6 | 16 | 4 |
| Total | | 661 | 139 | 22 | 90 | 23 | 44 | 41 | 6 | 1,026 | |

TABLE 8: Daily Average Deployed Minutes by Run Type and Unit

| Station | Unit Id | Unit Type | EMS | False Alarm | Good Intent | Hazard | Outside Fire | Public Service | Structure Fire | Canceled | Total |
|---------|---------|----------------------|-------------|-------------|-------------|-------------|--------------|----------------|----------------|------------|-------------|
| 1 | P17L3 | Light duty command | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | Total | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | P1700 | Light duty command | 0.2 | 0.1 | 0.1 | 0.1 | 1.0 | 0.0 | 0.4 | 0.0 | 1.9 |
| | P1723 | Bls ambulance | 1.1 | 0.1 | 0.0 | 0.9 | 0.5 | 0.1 | 0.0 | 0.0 | 2.8 |
| | P1726 | Light duty command | 0.1 | 0.2 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.6 |
| | P1741 | Engine (mini-pumper) | 1.3 | 2.9 | 0.3 | 7.3 | 1.5 | 0.9 | 1.9 | 0.2 | 16.3 |
| | P1743 | Bls ambulance | 34.6 | 1.0 | 0.2 | 1.0 | 0.8 | 0.4 | 0.5 | 0.0 | 38.5 |
| | P1746 | Light duty command | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 |
| | P1761 | Engine | 0.3 | 2.2 | 0.4 | 1.8 | 1.2 | 1.1 | 2.4 | 0.0 | 9.3 |
| | P17C2 | Light duty command | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 |
| | P17C3 | Light duty command | 0.5 | 0.1 | 0.2 | 0.5 | 0.0 | 0.1 | 0.0 | 0.0 | 1.3 |
| | P17L1 | Light duty command | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3 | P17L5 | Light duty command | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 |
| | | Total | 38.6 | 6.7 | 1.2 | 11.7 | 5.0 | 2.8 | 5.2 | 0.2 | 71.5 |
| 3 | P1721 | Engine | 0.2 | 0.8 | 0.2 | 1.0 | 1.4 | 0.2 | 0.8 | 0.0 | 4.4 |
| | P1722 | Aerial platform | 0.4 | 2.1 | 0.2 | 0.5 | 1.1 | 0.1 | 3.1 | 0.0 | 7.5 |
| | | Total | 0.6 | 2.8 | 0.4 | 1.4 | 2.5 | 0.3 | 3.8 | 0.0 | 12.0 |
| | | Total | 39.2 | 9.6 | 1.6 | 13.2 | 7.5 | 3.1 | 9.1 | 0.3 | 83.5 |

Observations:

P1743 (a BLS ambulance) and P1741 (an engine) recorded the most runs and work for the department.

P1743 accounted for 59 percent of the department's overall runs and 46 percent of the department's total workload.

P1741 accounted for 14 percent of the department's overall runs and 20 percent of the department's total workload.

P1743 made the most runs (606 or an average of 1.7 runs per day) and had the highest total annual deployed time (234.1 or an average of 38.5 minutes per day).

EMS calls accounted for 93 percent of the unit's runs and 90 percent of its total deployed time.

Structure and outside fire calls accounted for 1 percent of runs and 3 percent of total deployed time.

P1741 made the second most runs (148 or an average of 0.4 runs per day) and had the second highest total annual deployed time (99.1 or an average of 16.3 minutes per day).

EMS calls accounted for 22 percent of the unit's runs and 8 percent of total deployed time.

Structure and outside fire calls accounted for 8 percent of runs and 21 percent of total deployed time.

ANALYSIS OF BUSIEST HOURS

There is significant variability in the number of calls from hour to hour. One special concern relates to the resources available for hours with the heaviest workload. We tabulated the data for each of the 8,760 hours in the year. Table 9 shows the number of hours in the year in which there were zero to 2 calls during the hour. Table 10 shows the 10 one-hour intervals which had the most calls during the year.

TABLE 9: Frequency Distribution of the Number of Calls

| Calls in an Hour | Frequency | Percentage |
|------------------|-----------|------------|
| 0 | 8,016 | 91.5 |
| 1 | 697 | 8.0 |
| 2+ | 47 | 0.5 |

TABLE 10: Top 10 Hours with the Most Calls Received

| Hour | Number of Calls | Number of Runs | Total Deployed Hours |
|-------------------------------------|-----------------|----------------|----------------------|
| 11/19/2017 noon to 1:00 p.m. | 3 | 4 | 2.8 |
| 12/13/2017 10:00 p.m. to 11:00 p.m. | 3 | 4 | 0.9 |
| 5/28/2018 9:00 a.m. to 10:00 a.m. | 3 | 3 | 0.9 |
| 8/3/2017 7:00 p.m. to 8:00 p.m. | 3 | 3 | 0.8 |
| 5/17/2018 2:00 p.m. to 3:00 p.m. | 3 | 3 | 0.1 |
| 6/18/2018 7:00 p.m. to 8:00 p.m. | 2 | 8 | 3.9 |
| 2/4/2018 midnight to 1:00 a.m. | 2 | 6 | 4.9 |
| 1/13/2018 7:00 p.m. to 8:00 p.m. | 2 | 6 | 1.1 |
| 5/4/2018 9:00 p.m. to 10:00 p.m. | 2 | 4 | 8.1 |
| 5/4/2018 1:00 p.m. to 2:00 p.m. | 2 | 4 | 2.0 |

Note: Total deployed hours is a measure of the total time spent responding to calls received in the hour, and which may extend into the next hour or hours. The number of runs and deployed hours only includes NFD units.

Observations:

During 47 hours (0.5 percent of all hours), two or more call occurred; in other words, the department responded to two or more calls in an hour roughly once every 8 days.

The highest number of calls to occur in an hour was 3, which happened 5 times.

The two hours with the most calls and the most runs were noon to 1:00 p.m. on November 19, 2017 and 11:00 p.m. to midnight on June 11, 2017.

The 3 calls on November 19 involved 4 individual dispatches resulting in 2.8 hours of deployed time. These 3 calls included an illness and other call, a motor vehicle accident call, and a public service call.

The 3 calls on December 13 involved 4 individual dispatches resulting in 0.9 hours of deployed time. These 3 calls included two illness and other calls and a motor vehicle accident call.

RESPONSE TIME

In this part of the analysis, we present response time statistics for different call types. We separate response time into its identifiable components. *Dispatch time* is the difference between the time a call is received and the time a unit is dispatched. Dispatch time includes call processing time, which is the time required to determine the nature of the emergency and types of resources to dispatch. *Turnout time* is the difference between dispatch time and the time a unit is en route to a call's location. *Travel time* is the difference between the time en route and arrival on scene. *Response time* is the total time elapsed between receiving a call to arriving on scene.

In this analysis, we included all calls to which at least one non-administrative unit from the city of Plymouth's fire and EMS resources responded, while excluding canceled calls. In addition, non-emergency calls and calls with a total response time of more than 30 minutes were excluded. Finally, we focused on units that had complete time stamps, that is, units with all components recorded, so that we could calculate each segment of response time.

Based on the methodology above, we excluded six canceled calls, 75 calls where no units recorded a valid on-scene time, two calls where the first arriving unit response was greater than 30 minutes, and 34 calls where one or more segments of first arriving unit's response time could not be calculated due to missing data. As a result, in this section, a total of 679 calls are included in the analysis.

RESPONSE TIME BY TYPE OF CALL

Table 11 provides average dispatch, turnout, travel, and total response time for the first arriving unit to each call in the city, broken out by call type. Figures 7 and 8 illustrate the same information. Table 12 gives the 90th percentile time broken out in the same manner. A 90th percentile time means that 90 percent of calls had response times at or below that number. For example, Table 12 shows a 90th percentile response time of 14.7 minutes which means that 90 percent of the time a call had a response time of no more than 14.7 minutes.

TABLE 11: Average Response Time of First Arriving Unit, by Call Type (Minutes)

| Call Type | Dispatch | Turnout | Travel | Total | Number of Calls |
|-----------------------------|------------|------------|------------|------------|-----------------|
| Breathing difficulty | 1.7 | 2.8 | 3.2 | 7.8 | 55 |
| Cardiac and stroke | 2.3 | 3.4 | 2.8 | 8.4 | 60 |
| Fall and injury | 2.7 | 2.6 | 2.5 | 7.9 | 114 |
| Illness and other | 2.1 | 3.8 | 3.3 | 9.3 | 191 |
| MVA | 1.5 | 1.6 | 1.7 | 4.8 | 13 |
| Overdose and psychiatric | 1.8 | 3.4 | 3.1 | 8.3 | 35 |
| Seizure and unconsciousness | 2.2 | 3.2 | 2.7 | 8.0 | 51 |
| EMS Total | 2.2 | 3.3 | 3.0 | 8.4 | 519 |
| False alarm | 4.1 | 3.2 | 2.5 | 9.7 | 62 |
| Good intent | 5.3 | 1.2 | 3.1 | 9.7 | 10 |
| Hazard | 3.1 | 3.9 | 2.4 | 9.3 | 47 |
| Outside fire | 4.1 | 2.6 | 1.7 | 8.3 | 4 |
| Public service | 3.9 | 2.4 | 2.8 | 9.2 | 23 |
| Structure fire | 5.9 | 0.2 | 3.4 | 9.5 | 14 |
| Fire Total | 4.0 | 2.9 | 2.6 | 9.5 | 160 |
| Total | 2.6 | 3.2 | 2.9 | 8.7 | 679 |

FIGURE 7: Average Response Time of First Arriving Unit, by Call Type – EMS

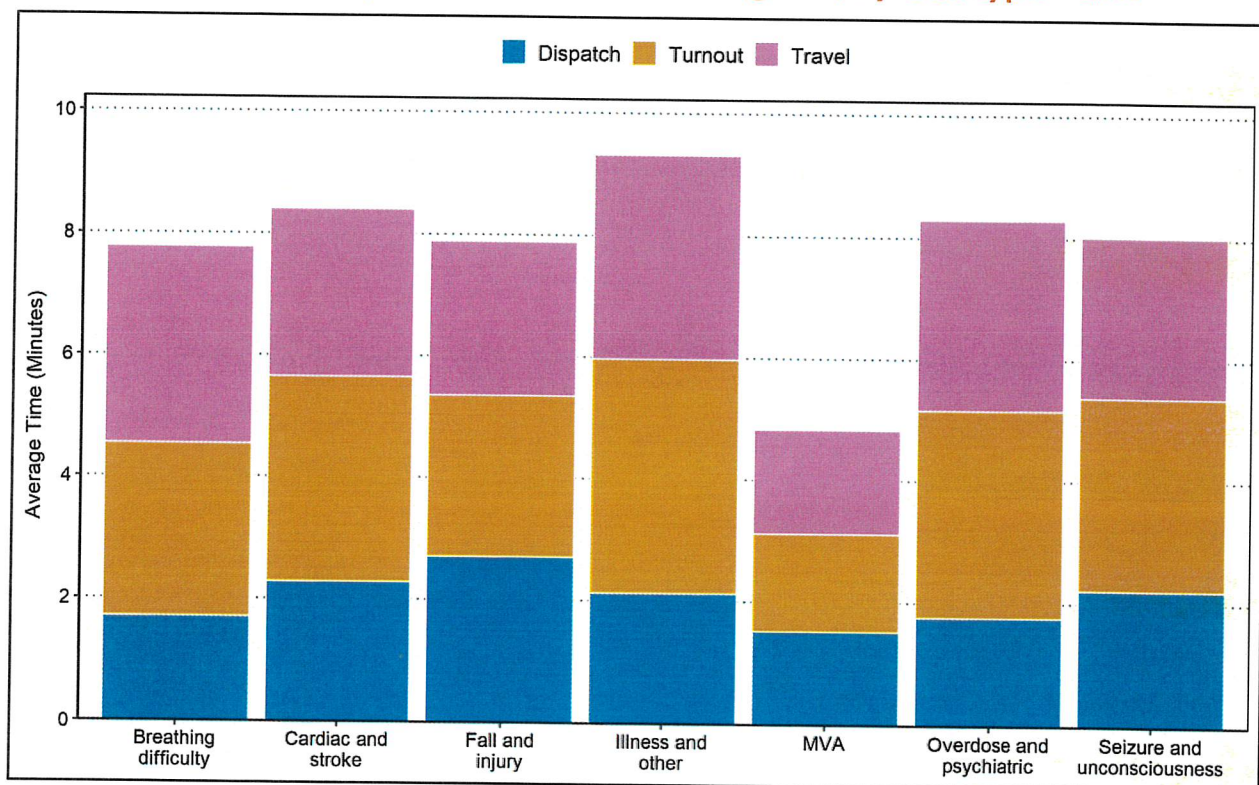


FIGURE 8: Average Response Time of First Arriving Unit, by Call Type – Fire

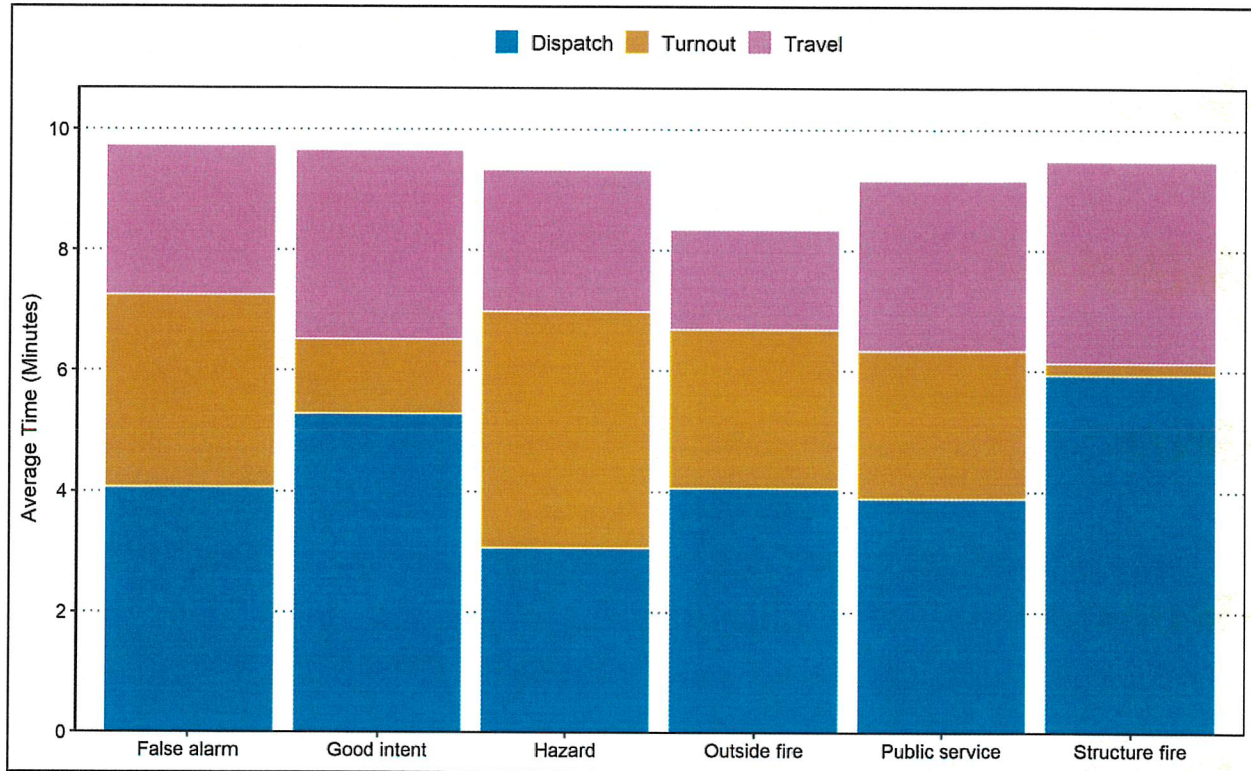


TABLE 12: 90th Percentile Response Time of First Arriving Unit, by Call Type (Minutes)

| Call Type | Dispatch | Turnout | Travel | Total | Number of Calls |
|-----------------------------|------------|-------------|------------|-------------|-----------------|
| Breathing difficulty | 2.8 | 8.2 | 5.7 | 12.2 | 55 |
| Cardiac and stroke | 3.5 | 7.2 | 5.0 | 12.9 | 60 |
| Fall and injury | 6.7 | 7.5 | 4.7 | 12.9 | 114 |
| Illness and other | 4.0 | 9.8 | 5.4 | 15.0 | 191 |
| MVA | 3.5 | 5.1 | 4.1 | 9.2 | 13 |
| Overdose and psychiatric | 5.3 | 9.4 | 6.6 | 15.6 | 35 |
| Seizure and unconsciousness | 4.4 | 8.0 | 5.8 | 12.9 | 51 |
| EMS Total | 4.8 | 9.2 | 5.4 | 13.9 | 519 |
| False alarm | 9.8 | 11.2 | 4.7 | 16.5 | 62 |
| Good intent | 11.0 | 4.2 | 4.9 | 14.3 | 10 |
| Hazard | 6.1 | 11.4 | 4.0 | 16.8 | 47 |
| Outside fire | 7.0 | 10.4 | 3.0 | 13.4 | 4 |
| Public service | 11.2 | 7.8 | 4.1 | 16.1 | 23 |
| Structure fire | 11.5 | 0.5 | 9.2 | 14.1 | 14 |
| Fire Total | 9.8 | 10.3 | 4.7 | 16.1 | 160 |
| Total | 6.7 | 9.3 | 5.2 | 14.7 | 679 |

Observations:

The average dispatch time was 2.6 minutes.

The average turnout time was 3.2 minutes.

The average travel time was 2.9 minutes.

The average total response time was 8.7 minutes.

The average response time was 8.4 minutes for EMS calls and 9.5 minutes for fire calls.

The average response time was 8.3 minutes for outside fires and 9.5 minutes for structure fires.

The 90th percentile dispatch time was 6.7 minutes.

The 90th percentile turnout time was 9.3 minutes.

The 90th percentile travel time was 5.2 minutes.

The 90th percentile total response time was 14.7 minutes.

The 90th percentile response time was 13.9 minutes for EMS calls and 16.1 minutes for fire calls.

The 90th percentile response time was 13.4 minutes for outside fires and 14.1 minutes for structure fires.

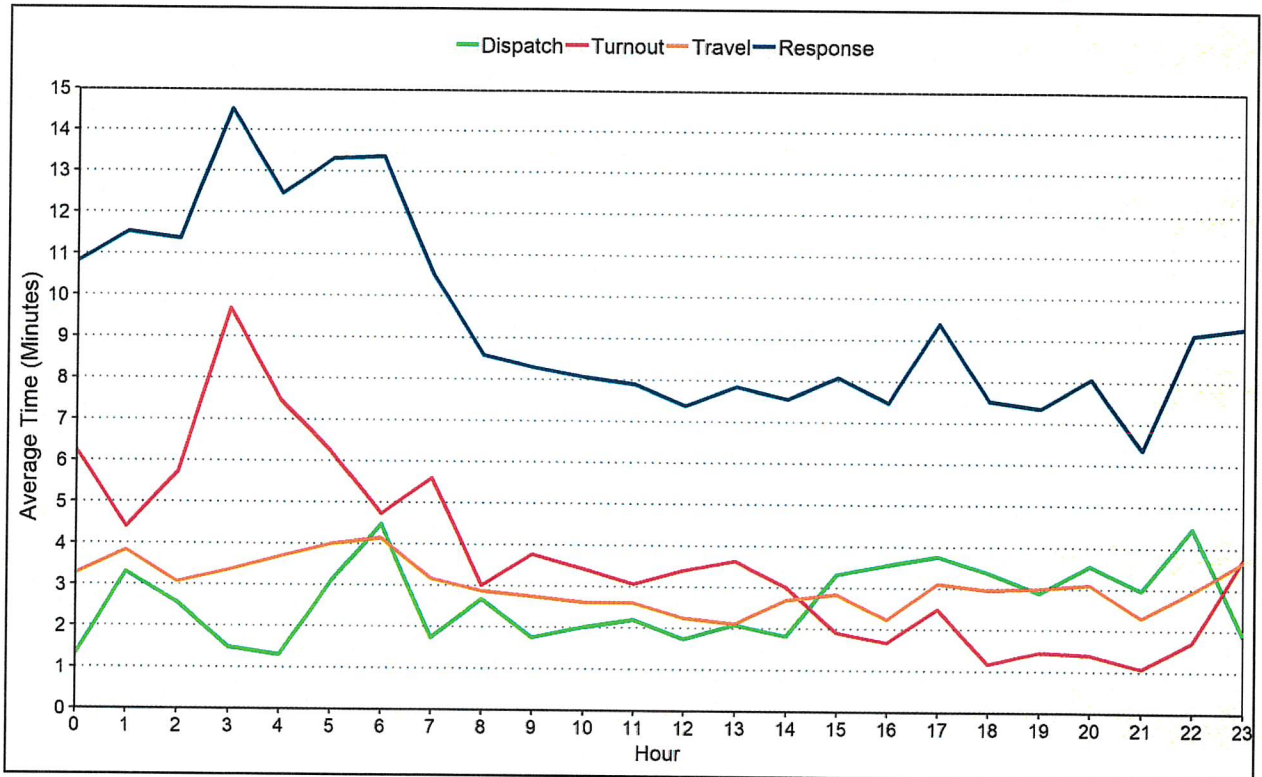
RESPONSE TIME BY HOUR

Average dispatch, turnout, travel, and total response time by hour for calls are shown in Table 13 and Figure 9. The table also shows 90th percentile response times.

TABLE 13: Average and 90th Percentile Response Time of First Arriving Unit, by Hour of Day

| Hour | Dispatch | Turnout | Travel | Response Time | 90th Percentile Response Time | Number of Calls |
|------|----------|---------|--------|---------------|-------------------------------|-----------------|
| 0 | 1.3 | 6.2 | 3.3 | 10.8 | 15.6 | 15 |
| 1 | 3.3 | 4.4 | 3.8 | 11.5 | 18.2 | 19 |
| 2 | 2.6 | 5.7 | 3.1 | 11.4 | 17.8 | 12 |
| 3 | 1.5 | 9.7 | 3.4 | 14.5 | 22.1 | 7 |
| 4 | 1.3 | 7.5 | 3.7 | 12.5 | 17.4 | 7 |
| 5 | 3.1 | 6.2 | 4.0 | 13.3 | 16.9 | 12 |
| 6 | 4.5 | 4.7 | 4.2 | 13.4 | 24.3 | 19 |
| 7 | 1.8 | 5.6 | 3.2 | 10.5 | 16.5 | 26 |
| 8 | 2.7 | 3.0 | 2.9 | 8.6 | 13.5 | 31 |
| 9 | 1.8 | 3.8 | 2.8 | 8.3 | 12.9 | 40 |
| 10 | 2.0 | 3.4 | 2.6 | 8.1 | 13.2 | 53 |
| 11 | 2.2 | 3.1 | 2.6 | 7.9 | 13.5 | 44 |
| 12 | 1.7 | 3.4 | 2.2 | 7.4 | 12.4 | 51 |
| 13 | 2.1 | 3.6 | 2.1 | 7.9 | 13.3 | 37 |
| 14 | 1.8 | 3.0 | 2.7 | 7.6 | 12.1 | 44 |
| 15 | 3.3 | 1.9 | 2.8 | 8.1 | 12.7 | 36 |
| 16 | 3.6 | 1.7 | 2.2 | 7.5 | 11.4 | 21 |
| 17 | 3.8 | 2.5 | 3.1 | 9.4 | 15.4 | 37 |
| 18 | 3.4 | 1.2 | 3.0 | 7.5 | 13.5 | 32 |
| 19 | 2.9 | 1.5 | 3.0 | 7.4 | 11.9 | 40 |
| 20 | 3.6 | 1.4 | 3.1 | 8.1 | 12.1 | 33 |
| 21 | 3.0 | 1.1 | 2.3 | 6.4 | 10.5 | 21 |
| 22 | 4.5 | 1.7 | 2.9 | 9.1 | 12.1 | 21 |
| 23 | 1.9 | 3.8 | 3.7 | 9.3 | 15.5 | 21 |

FIGURE 9: Average Response Time of First Arriving Unit, by Hour of Day



Observations:

Average dispatch time was between 1.3 minutes (midnight to 1:00 a.m. and 4:00 a.m. to 5:00 a.m.) and 4.5 minutes (6:00 a.m. to 7:00 a.m. and 10:00 p.m. to 11:00 p.m.).

Average turnout time was between 1.1 minutes (9:00 p.m. to 10:00 p.m.) and 9.7 minutes (3:00 a.m. to 4:00 a.m.).

Average travel time was between 2.1 minutes (1:00 p.m. to 2:00 p.m.) and 4.2 minutes (6:00 a.m. to 7:00 a.m.).

Average total response time was between 6.4 minutes (9:00 p.m. to 10:00 p.m.) and 14.5 minutes (3:00 a.m. to 4:00 a.m.).

90th percentile total response time by hour ranged from 10.5 minutes (9:00 p.m. to 10:00 p.m.) and 24.3 minutes (6:00 a.m. to 7:00 a.m.).

RESPONSE TIME DISTRIBUTION

Here, we present a more detailed look at how response times to calls are distributed. The cumulative distribution of total response time for the first arriving unit to EMS calls is shown in Figure 10 and Table 14. Figure 10 shows response times for the first arriving unit to EMS calls as a frequency distribution in whole-minute increments.

The cumulative percentages here are read in the same way as a percentile. In Figure 10, the 90th percentile of 13.9 minutes means that 90 percent of EMS calls had a response time of 13.9 minutes or less. In Table 14, the cumulative percentage of 53, for example, means that 53 percent of EMS calls had a response time under 8 minutes.

FIGURE 10: Cumulative Distribution of Response Time – First Arriving Unit – EMS

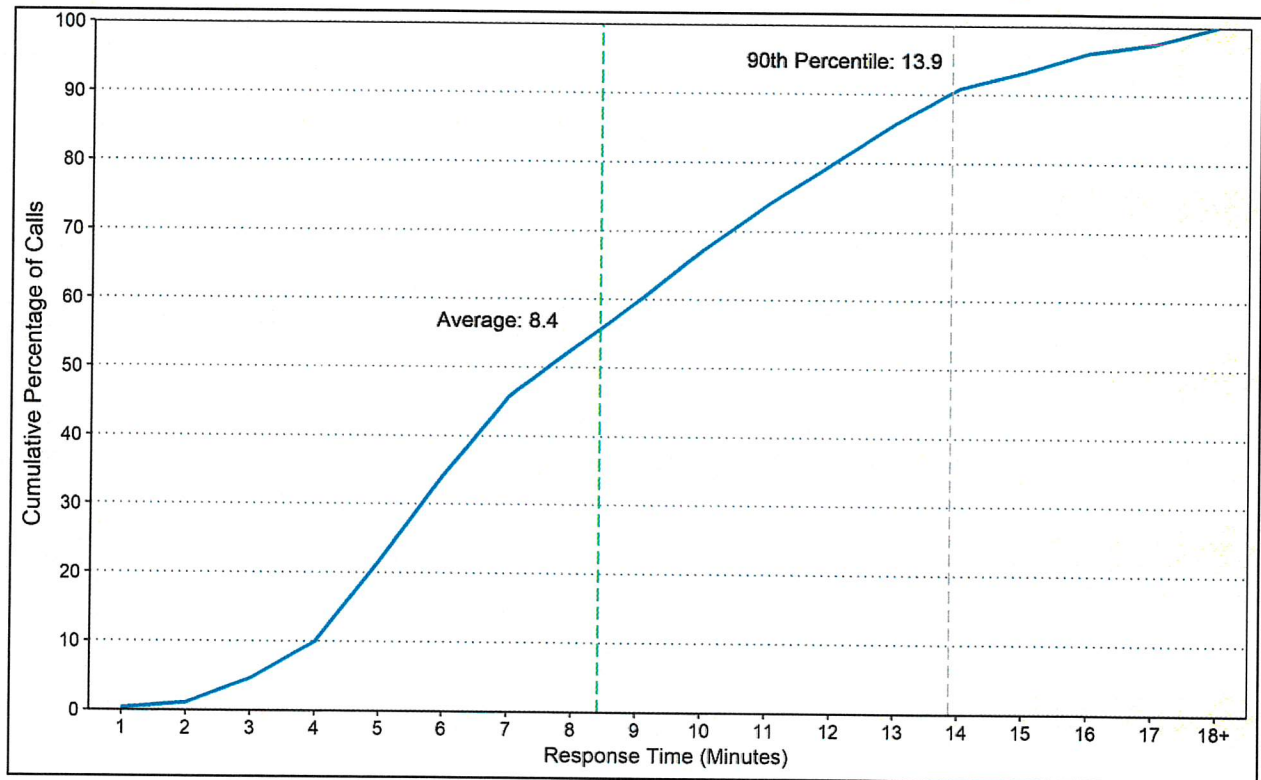


FIGURE 11: Frequency Distribution of Response Time – First Arriving Unit – Fire

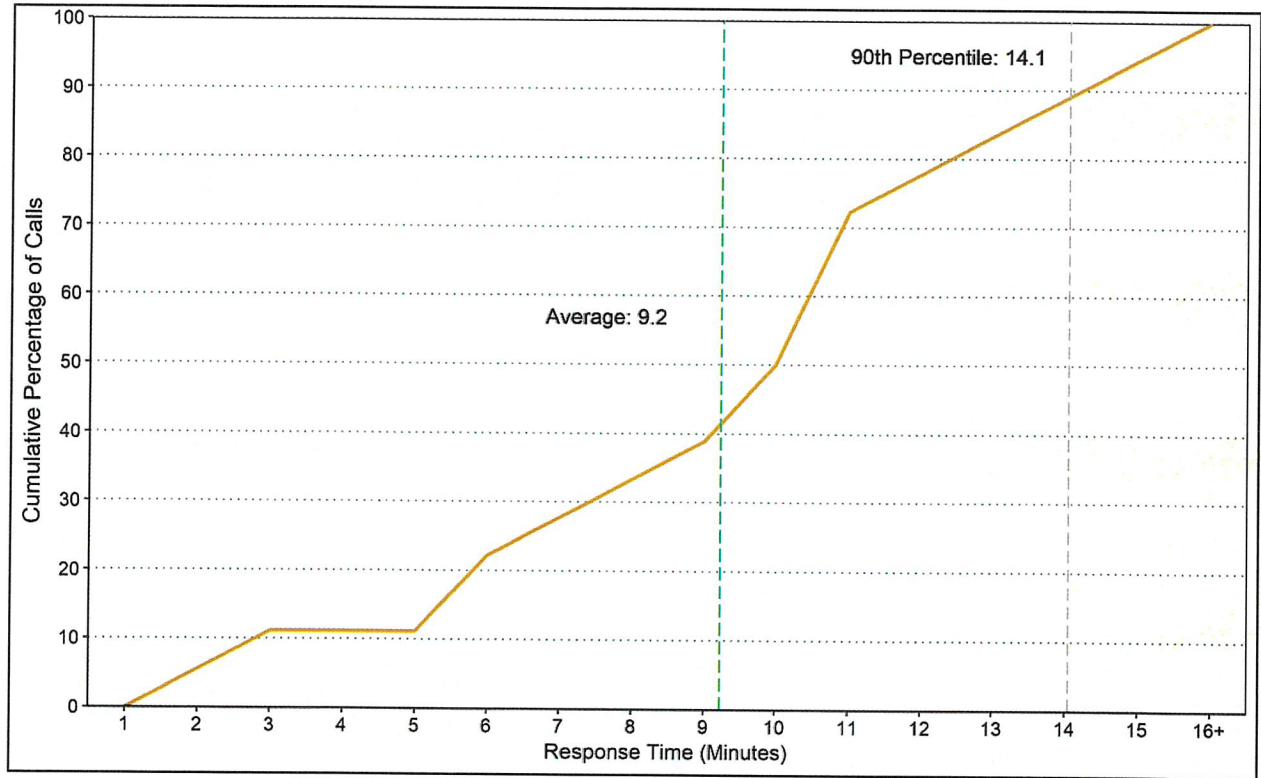


TABLE 14: Cumulative Distribution of Response Time – First Arriving Unit – EMS

| Response Time (minute) | Frequency | Cumulative Percentage |
|------------------------|-----------|-----------------------|
| 1 | 2 | 0.4 |
| 2 | 4 | 1.2 |
| 3 | 18 | 4.6 |
| 4 | 28 | 10.0 |
| 5 | 61 | 21.8 |
| 6 | 65 | 34.3 |
| 7 | 59 | 45.7 |
| 8 | 37 | 52.8 |
| 9 | 36 | 59.7 |
| 10 | 39 | 67.2 |
| 11 | 34 | 73.8 |
| 12 | 31 | 79.8 |
| 13 | 31 | 85.7 |
| 14 | 27 | 90.9 |
| 15 | 12 | 93.3 |
| 16 | 15 | 96.1 |
| 17+ | 20 | 100.0 |

TABLE 15: Cumulative Distribution of Response Time – First Arriving Unit – Outside and Structure Fires

| Response Time (minute) | Frequency | Cumulative Percentage |
|------------------------|-----------|-----------------------|
| 1 | 0 | 0.0 |
| 2 | 1 | 5.6 |
| 3 | 1 | 11.1 |
| 4 | 0 | 11.1 |
| 5 | 0 | 11.1 |
| 6 | 2 | 22.2 |
| 7 | 1 | 27.8 |
| 8 | 1 | 33.3 |
| 9 | 1 | 38.9 |
| 10 | 2 | 50.0 |
| 11 | 4 | 72.2 |
| 12 | 1 | 77.8 |
| 13 | 1 | 83.3 |
| 14 | 1 | 88.9 |
| 15 | 1 | 94.4 |
| 16+ | 1 | 100.0 |

Observations:

For 53 percent of EMS calls, the response time of the first arriving unit was less than 8 minutes.

For 22 percent of structure and outside fire calls, the response time of the first arriving unit was less than 6 minutes.

ATTACHMENT I

TABLE 16: Actions Taken Analysis for Structure and Outside Fire Calls

| Action Taken | Number of Calls | |
|--|-----------------|----------------|
| | Outside Fire | Structure Fire |
| Enforce codes | 1 | 0 |
| Extinguishment by fire service personnel | 3 | 5 |
| Fire control or extinguishment, other | 1 | 0 |
| Incident command | 6 | 6 |
| Investigate | 3 | 7 |
| Provide apparatus | 0 | 7 |
| Provide basic life support (BLS) | 0 | 1 |
| Provide equipment | 0 | 4 |
| Provide information to public or media | 0 | 2 |
| Provide manpower | 0 | 8 |
| Refer to proper authority | 0 | 1 |
| Remove hazard | 0 | 1 |
| Salvage & overhaul | 3 | 3 |
| Standby | 0 | 1 |
| Ventilate | 0 | 3 |
| Total | 17 | 49 |

Note: Totals are higher than the total number of structure and outside fire calls because some calls had more than one action taken.

Observations:

Out of 7 outside fires, 3 were extinguished by fire service personnel, which accounted for 43 percent of outside fires.

Out of 19 structure fires, 5 were extinguished by fire service personnel, which accounted for 26 percent of structure fires.

ATTACHMENT II

TABLE 17: Workload of Administrative Units

| Unit ID | Unit Type | Annual Hours | Annual Runs |
|---------|-----------|--------------|-------------|
| P1727 | Utility | 21.2 | 33 |

ATTACHMENT III

TABLE 18: Content and Property Loss – Structure and Outside Fires

| Call Type | Property Loss | | Content Loss | |
|----------------|-----------------|-----------------|-----------------|-----------------|
| | Loss Value | Number of Calls | Loss Value | Number of Calls |
| Outside fire | \$3,000 | 1 | \$1,200 | 1 |
| Structure fire | \$40,000 | 1 | \$15,000 | 1 |
| Total | \$43,000 | 2 | \$16,200 | 2 |

Note: This includes only calls with recorded loss greater than 0.

Observations:

Out of 7 outside fires, one had a recorded property loss of \$3,000.

One outside fire had a content loss of \$1,200.

Out of 19 structure fires, one had a recorded property loss of \$40,000 along with a content loss of \$15,000.

TABLE 19: Total Fire Loss Above and Below \$20,000

| Call Type | No Loss | Under \$20,000 | \$20,000 plus |
|----------------|-----------|----------------|---------------|
| Outside fire | 5 | 2 | 0 |
| Structure fire | 18 | 0 | 1 |
| Total | 23 | 2 | 1 |

Observations:

5 outside fires and 18 structure fires had no recorded loss.

No outside fires and one structure fire had \$20,000 or more in loss.

The highest total loss for a structure fire was \$55,000.

The highest total loss for an outside fire was \$3,000.

- END -